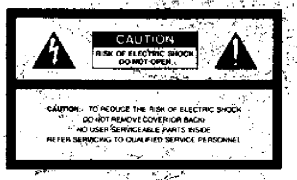
Roland

MIDI GUITAR SYNTHESIZER

GR-50

Owner's Manual


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS

WARNING When using electric products, basic precautions should always be followed, including the following;

1. Read all the instructions before using the product.
2. Do not use this product near water- for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
3. This product should be used only with a cart or stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss.
   Do not operate for a long period of time at a high volume level or at level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with its proper ventilation.
6. The product should be located away from heat sources such as radiators, heat registers or other products that produce heat.
7. The product should avoid using in where it may be effected by dust.
8. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
9. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
10. Do not tread on the power-supply cord.
11. Do not pull the cord but hold the plug when unplugging.
12. When setting up with any other instruments, the procedure should be followed in accordance with instruction manual.
13. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
14. The product should be serviced by qualified service personnel when:
    A: The power-supply cord or the plug has been damaged; or
    B: Objects have fallen, or liquid has been spilled into the product; or
    C: The product has been exposed to rain; or
    D: The product does not appear to operate normally or exhibits a marked change in performance; or
    E: The product has been dropped, or the enclosure damaged.
15. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

SAVE THESE INSTRUCTIONS

ADVARSEL!

Lithiumbatteri. Eksplosionsfare.
Udskiftning må kun foretages af en sagkyndig, og som beskrevet i servicemanual.

VARNING!

Lithiumbatteri. Explosionsrisk.
Får endast bytas av behörig servicetekniker.
Se instruktioner i servicemanualen.

ADVARSEL!

Lithiumbatteri. Fare for eksplotion.
Må bare skiftes av kvalifisert tekniker som beskrevet i servicemanualen.

VAROITUS!

Lithiumparisto. Räjähdysvaara.
Pariston saa vaihtaa ainoastaan alan ammottimies.

WARNING

THIS APPARATUS MUST BE EARTH GROUNDED.

The three conductors of the mains lead attached to this apparatus are identified with color as shown in the table below, together with the matching terminal on the UK type power plug. When connecting the mains lead to a plug, be sure to connect each conductor to the correct terminal, as indicated.
"This instruction applies to the product for United Kingdom."

MAINS LEADS		PLUG
Conductor	Color	Mark on the matching terminal
Live	Brown	Red or letter L
Neutral	Blue	Black or letter N
Grounding	Green-Yellow	Green, Green-Yellow, letter E or symbol

Bescheinigung des Herstellers /Importeurs

Hiermit wird bescheinigt, daß der/die/das
ROLAND GUITAR SYNTHESIZER GR-50
(Gerät, Typ Bezeichnung)

in Übereinstimmung mit den Bestimmungen der
Amtsbl. Vfg 1046 / 1984
(Amtsblattverfügung)

funk-entstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka / Japan
Name des Herstellers/Importeurs

RADIO AND TELEVISION INTERFERENCE

"Warning - This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception."

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J, of Part 15, of FCC Rules. These rules are designed to provide reasonable protection against such a interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measure:

- Disconnect other devices and their input/output cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable.
  These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non Roland devices, contact the manufacturer or dealer for assistance.
  If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:
- Turn the TV or radio antenna until the interferences stops.
- Move the equipment to one side or the other of the TV or radio.
- Move the equipment farther away from the TV or radio.
- Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
- Consider installing a rooftop television antenna with coaxial cable lead-in between the antenna and TV.

If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission:

"How to Identify and Resolve Radio-TV Interference Problems."

This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

GR-50 GUITAR SYNTHESIZER

Owner's Manual

Thank you for purchasing the Roland GR-50 Guitar Synthesizer.

By connecting the GR-50 to your guitar using the GK-2 (Synthesizer Driver), you can play the built-in synthesizer sounds (LA synthesis sounds). Also, using a sequencer or MIDI sound module, you can enjoy ensemble performance with the built-in multi-timbral sound source.
To make the best use of the GR-50, please read this owner's manual carefully.

Please read the separate "MIDI" before reading this owner's manual.

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■FEATURES

Direct control via guitar of the internal LA synthesis sound modules
Simply connect a guitar equipped with the optional GK-2 (Synthesizer Driver), or a G-series Guitar Controller (you'll need the optional BC-13 convertor), and you'll be able to explore the wealth of tones offered by the built-in sound sources.

A 16-bit CPU and newly developed proprietary LSI assure high-speed processing of the guitar signals, allowing direct control of the built-in sounds. As a result, you're certain to obtain unprecedented levels of response over a wide dynamic range. In addition, its expressive capabilities are geared for the guitar (such as providing tones changes dependent on picking strength), thus opening up new realms for guitar synthesizer.

Capable of converting guitar signals to MIDI and then transmitting it
Musical information received from the guitar controller is converted to MIDI data which can then be used to play an external MIDI sound module. When both branches are employed, simultaneous output of data corresponding to 2 separate MIDI settings is possible. In addition, a mono mode, in Which data is sent in accordance with separate MIDI channels assigned to each string, is provided, thus making possible performances truly reflecting the expressive characteristics of the guitar.

Can be used as a multi-timbral sound module played by external MIDI data
As a multi-timbral sound module, it has 2 synthesizer parts and 1 rhythm part which can be played by units such as a MIDI sequencer. Thus, you are able to play guitar along with accompaniment provided by MIDI sequencing.

Through patches, you can alter sounds, and the way they are converted to MIDI
Information concerning how a sound will be, or how conversion to MIDI is to be made can be stored as patches. Up to a total of 64 patches can be stored, and through shifting among them you can simultaneously change the settings for sounds ; not only for the main unit, but for external MIDI devices as well.

Patch Chain : Storage provided for a sequence of patches to be played
Any desired group of up to 25 patches can be designated and stored as a Patch Chain, which later plays the patches in proper sequence. Moreover, as many as 5 Patch Chains can be created and put in memory.

Control Assign
Provides free control over how functions are assigned to things such as the switches on guitar controllers or optional foot controllers. Gives you control over internal sound sources as well as MIDI sound modules.

Digital Reverb
An internal digital reverb can be used to add more body to the internal sounds.

LA Synthesis
Equipped with LA Synthesis, acclaimed by many for offering the full range of expression ; from the fatness of sound associated with conventional analog synthesizers, to the sharp or metallic sounds characteristic of digital synthesizers.

Memory Card
Optional memory cards (M-256D or M-256E) can be used to store your personal collection of original sounds.

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■ IMPORTANT NOTES

●The appropriate power supply for this unit is shown on its name plate. Please make sure that the line voltage in your country meets this requirement.

●Do not use the same socket used for any noise generating device.(such as a motor or variable lighting system).

●Make sure that the unit is turned off before connecting the power plug to the AC socket.

●When disconnecting the power plug from the socket, do not pull the cord, but hold the plug to avoid damaging the cord.

●Avoid damaging the power cord.

●If the unit is not to be used for a long period of time, unplug the cord from the socket.

●It is normal for this unit to become hot while being operated.

●Check with your local Roland dealer if you wish to use this unit in another country.

●Before setting up this GR-50 with other MIDI devices, turn this unit off along with all other units.

●If you connect the instrument (this unit) to the amplifier with switched on, be sure to connect the cord to the instrument first, and when disconnecting, disconnect the cord from the amplifier first.

●This unit may not operate correctly if turned on immediately after being turned off. If this happens, simply turn it off a few seconds later, turn it on again.

●Operating the unit near a neon light, fluorescent lamp, TV or CRT Display may cause noise interference. If so, change the angle or the position of the unit.

●Operating this unit near a TV or radio may cause picture or noise interference. If this happens, move the unit away from these insturments.

●Avoid using this device in excessive heat or humidity conditions, or where it may be affected by direct sunlight or dust and avoid places subject to high vibration.

●Do not place or drop anything heavy on the main unit or its power cord.

●For cleaning the unit, use a dry and soft cloth.

●If the casing is stained, use a cloth slightly dampened with water.

●To remove stubborn stains, clean the casing with a cloth moistened with a nutral detergent, then wipe it dry with a soft cloth.

●Do not use solvents such as paint thinner when cleaning.

●This unit features a memory back-up system that retains the data even after switched off. The battery that supportes the back-up circuit should be replaced every five years. Call the Roland service station for a battery replacement. (The first replacement may be required before five years, depending on how much time had passed before you purchased the unit.)

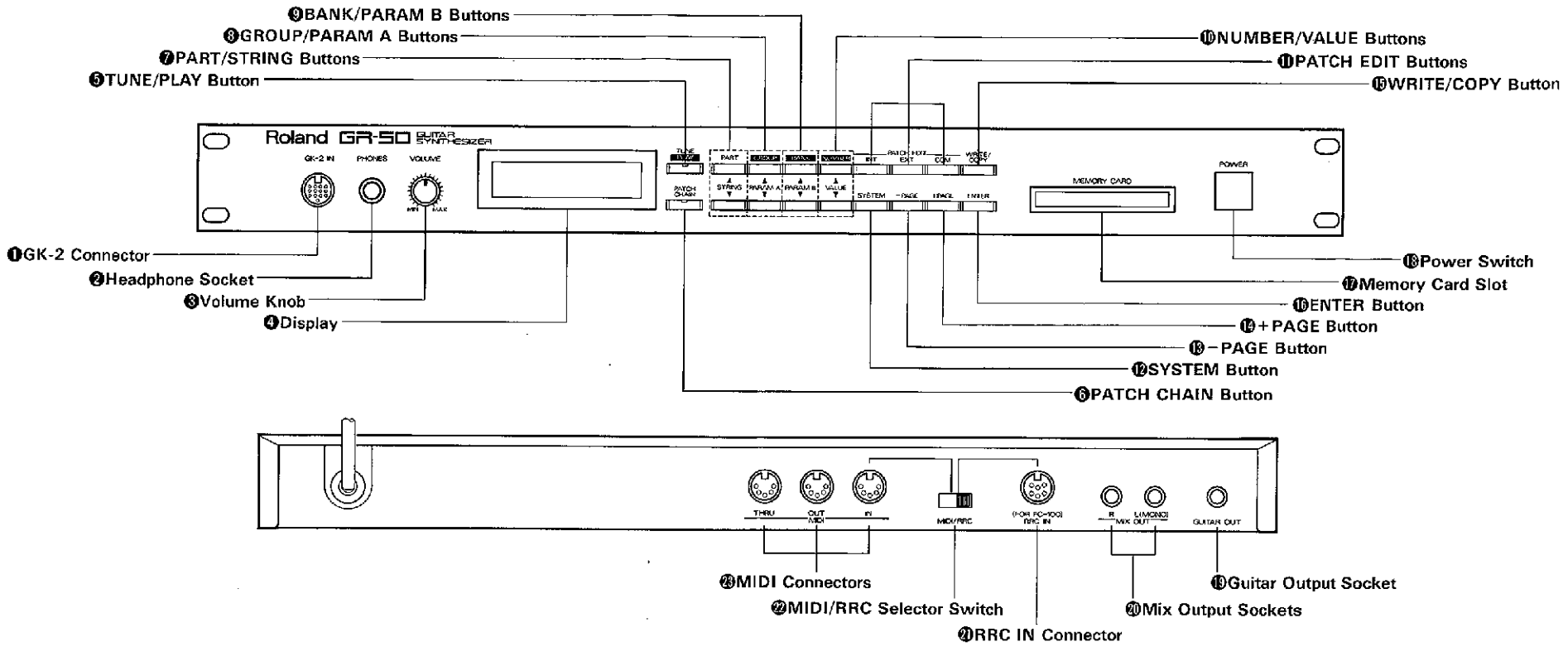
●When the battery is low, the Display defaults as shown below, and the data in the memory may be lost.
"Check Internal Battery"

●Although we do our utmost to protect your data during repairs, sometimes, especially when working on the memory itself or on a related area, some of our important data may be lost. Keep a separate record of all the data that you consider important. This can be done by saving it into the Memory Card.

●Do not connect anything but the FC-100 (Foot Controller) to the RRC Socket on the GR-50.

●Do not connect anything but the GK-2 or BC-13 (Bus Converter) to the "GK-2 Socket" on the GR-50.

■ PANEL DESCRIPTION



❶GK-2 Socket

Connect the GK-2 (Synthesizer Driver) or BC-13 (Bus Converter) to this socket. Use the supplied cable C-13A. Do not connect anything else to this socket.

❷Headphones Socket

Connect stereo headphones to this socket. Optimum are those with 8 to 150 ohm impedance. Even when headphones are connected to this socket, the Output Socket still sends signals.

❸Volume Knob

This controls the volume of the sound sent from the Mix Output Socket, but it does not affect the volume of the guitar's normal sound output from the Guitar Output Socket.

❹Display

The 16 character, 2 line LCD displays the full range of data.

❺Tune/Play Button

Press this button to turn to the Play mode (the basic mode for playing). Pressing this button during the Play mode will set the unit to the Tuning mode (the mode for tuning the guitar or the GR-50's internal sounds).

●Pressing this button will always set the unit to the Play mode, except when the unit is already in the Play mode.

❻Patch Chain Button

Use this button to change the setting of the current Patch Chain.

❼Part/String Button

In the Play mode, this button can be used to monitor the current Part settings. In any other mode, it changes the settings of Parts or strings.

❽Group/Param A Button
❾Bank/PARAM B Button
❿Number/Value Button

In the Play mode, these buttons are used to change Patches. In any other mode, these select a parameter or change values of the parameter.

⓫Patch Edit Buttons

Used to edit Patch data.

INT

Press this button to select the Patch Internal Edit Mode (to make necessary settings for playing the internal sounds with the guitar).

EXT

Press this button to select the Patch External Edit Mode (to make necessary settings for playing the external sound source with the guitar).

COM

Press this button to select the Patch Common Edit Mode (that makes settings for the entire Patch).

⑫System Button
This changes the settings related to the system itself.

●The buttons, INT, EXT, COM and SYSTEM, function as described above in any mode.

⑬Minus Page Button
In the Play mode, this button can be used to change Patch Chains. In other modes, this button can be used to back a mode.

⑭Plus Page Button
In the Play mode, this button can be used to change Patch Chains. This button can also be used to shift from the Patch Internal Edit or Part Display mode to the Part, Timbre, or Tone Editing mode.

⑮Write/Copy Button
In the Play mode, use this button to change to the Data Transfer mode (to transfer data with another MIDI device or a memory card). In other modes, press this button to enter the Write/Copy mode (to write the edited data into memory).

⑯Enter Button
In the Play or Patch Chain Setting mode, the Enter Button shifts the Patches in a Patch Chain. In other modes, it executes the data transfer or writing/copying procedure.

⑰Memory Card Slot
Insert a memory card here.

⑱Power Switch
This switches the unit on or off.

⑲Guitar Output Socket
This outputs the guitar's normal sound. The output is not affected by the GR-50's Volume Knob.

⑳Mix Output Sockets
These are stereo output sockets for the guitar synthesizer sound. When the Guitar Output Socket is not used, these sockets output the guitar synthesizer sound mixed with the guitar's normal sound.

㉑RRC Socket
Connect this socket to the FC-100 using the cable supplied with the FC-100. Do not connect any other unit to this socket.

㉒MIDI/RRC Selector Switch
This switch selects whether to use the MIDI or RRC Socket. When one is selected, the other socket does not function.

㉓MIDI Sockets
These sockets are used for connecting MIDI devices.

MIDI IN
Connect this socket to a MIDI controller (e.g. MIDI sequencer) which controls the GR-50's internal sound source.

MIDI OUT
Connect this socket to a MIDI sound module which is to be controlled by the Guitar Controller.

MIDI THRU
An exact copy of the signal received from MIDI IN is output from this socket.

BASIC COURSE

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2 Connections P. 17

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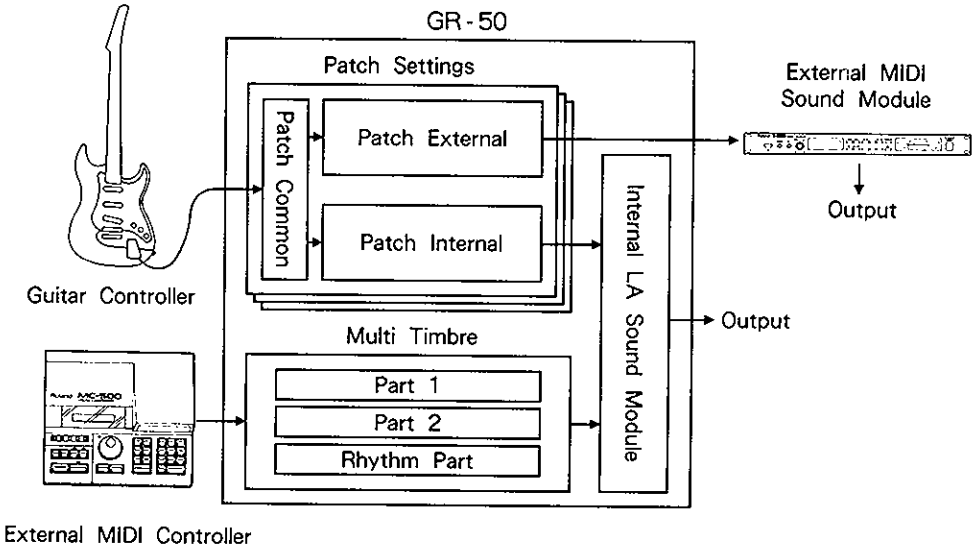
1 OUTLINE OF THE GR-50

The GR-50 has two functions ; one is playing the internal sound source with the signal sent from a guitar (functioning as a guitar synthesizer), and the other is converting performance data from the guitar controller to MIDI messages and outputing the messages from the MIDI OUT socket. The internal sound source can be played with a guitar, and at the same time be played via MIDI messages fed from MIDI IN as a multi timbral sound source. When the internal sound source is played, however, the maximum voices playable varies depending on the conditions. (See page 29 "Partials and the maximum Voices".)

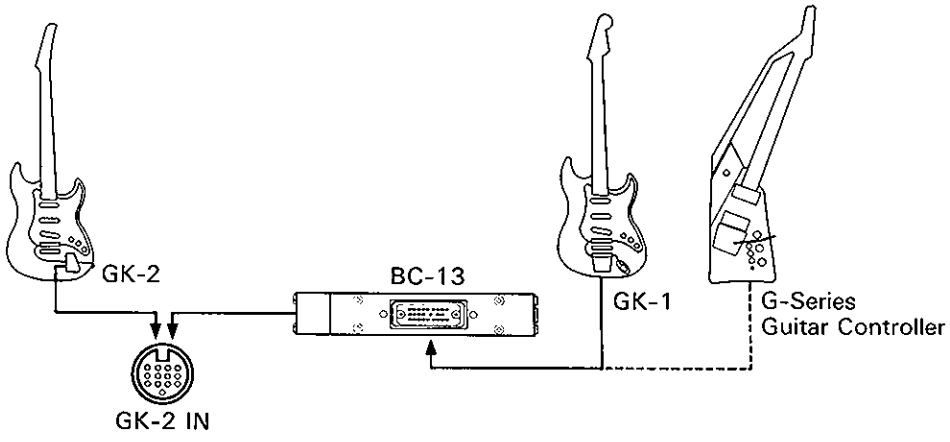
Please study the signal flow chart and the basic structure of the GR-50.



The following briefly explains the structure of the GR-50.

Guitar Controller and GR-50

The GR-50's internal sound source can be played via a guitar fitted with the the GK-2, the Synthesizer Driver. Also, by using the optional Bus Converter BC-13, the GR-50 can be played via the Roland GK-1 or G-series guitar controllers.



A guitar controller converts the vibration of the guitar's strings into signals. The GR-50 then changes the signal into messages that can play the internal sound source. Meanwhile, the same signal is converted into MIDI data and sent from the MIDI OUT.

Tone

When playing the internal sound source via a guitar, two Tones are assigned to each string. These two Tones can be mixed in various ways. Picking strength can be used to change the ratio of the mix ; or one can be played independently.

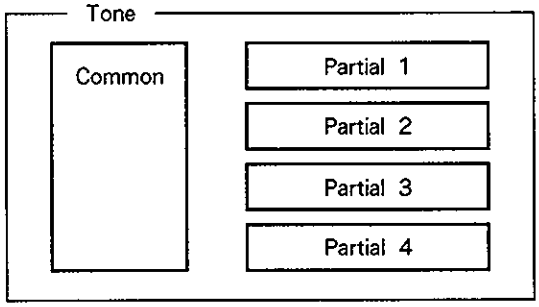
The GR-50's memory can retain 128 different Preset Tones, 64 user-programmed Tones, and 64 Preset Rhythm Tones. A Tone consists of the Common Block and four Partial Blocks.

● Common

The Common Block determines how the four Partials will be combined.

● Partial

A Partial is the smallest unit of a Tone. A Partial plays one voice using either a Synthesizer Sound Generator (similar to a conventional analog synthesizer) or PCM Sound Generator (similar to a PCM sampled synthesizer).



Patches

Patch data determines how to play the internal or external sound source. The GR-50 can store up to 64 different Patches. By changing Patches, the sounds in the external MIDI device, as well as the internal sounds can be instantaneously switched.
To edit Patch data, use the Patch Common, Patch Internal or Patch External edit modes.

● Patch Common

This allows you to set the Patch Name, Reverb effect for the internal sound source, Velocity Curve.

● Patch Internal

This allows you to set parameters for controlling the internal sound source with the signal from a guitar ; and performance controlling functions such as how to assign Tones to each string.

● Patch External

This allows you to set parameters for controlling the external sound source, such as MIDI Channel, Mono or Poly mode selection, which string's messages should be sent, which sound should be used, etc.

Multi Timbral

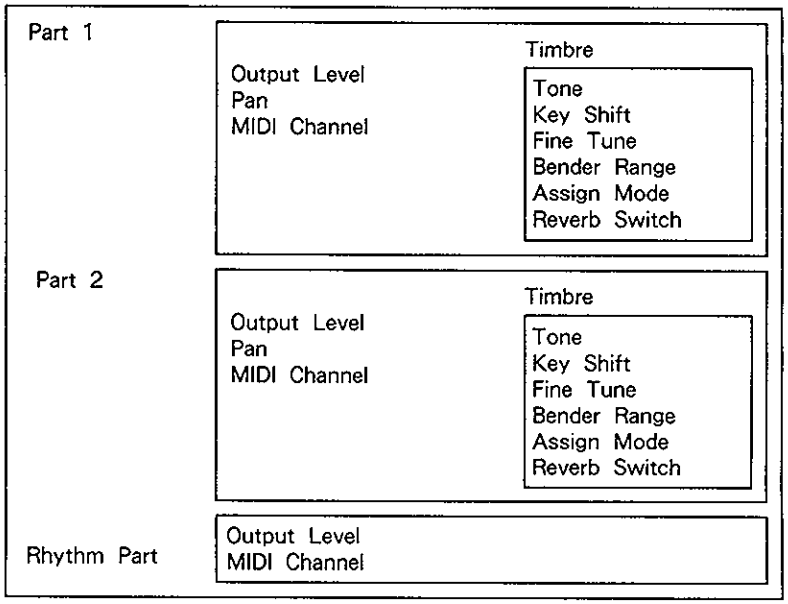
When the GR-50 is played via MIDI messages sent from an external MIDI controller (e.g. MIDI sequencer), the internal sound source of the GR-50 becomes "Multi Timbral" sound module (which has several independent MIDI receive channels, allowing you to control different sound sources separately).
The GR-50's Multi Timbral consists of two Synthesizer Parts and a Rhythm Part. A Timbre is assigned to each Synthesizer Part, and a Tone is assigned to each Note Name (key) in the Rhythm Part.

● Part

Each Part works like an independent synthesizer unit. A Part is accompanied by a MIDI channel, level, etc.

● Timbre

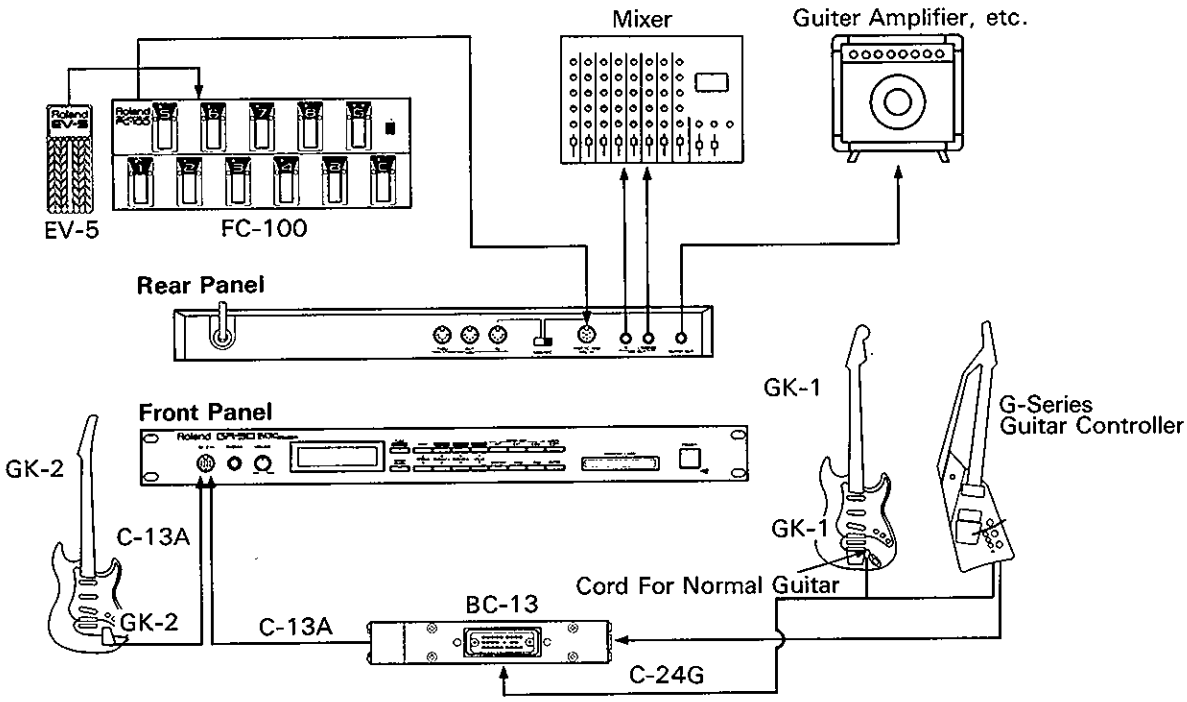
A Timbre consists of Tones and Performance Controlling functions such as a bender range.



2 CONNECTIONS

The basic course explains only about playing the internal sound source of the GR-50 with a guitar controller.

To play an external MIDI sound module, see page 40.
To connect an external MIDI controller, see page 43.



*The level of the guitar's normal sound output from the Guitar Output Socket cannot be controlled with the GR-50's Volume Knob. Use the volume knob on the guitar.

*The GR-50's Volume Knob works only on the output from the Mix Output Sockets.

*When the Guitar Output Socket is not being used, the guitar's normal sound is mixed with the synthesizer sound and output from the Mixed Output Sockets.

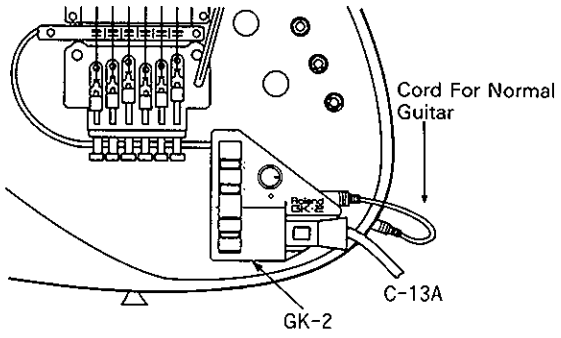
*When using the FC-100 and EV-5, set the MIDI/RRC Selector Switch to the RRC position.(At this time, MIDI IN is disabled.)

*The Synth Volume on the guitar controls the overall synthesizer volume of the GR-50.

To connect the GK-2

To connect the optional unit GK-2, be sure to use the supplied cable C-13A.

* Refer to the GK-2's owner's manual for the details of the setup.



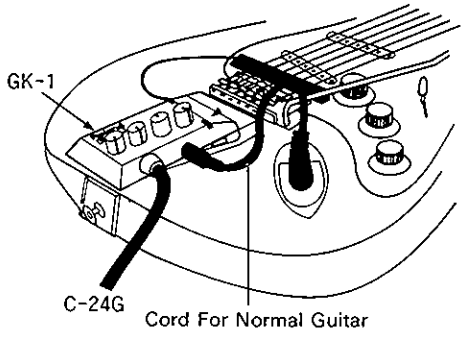
To connect the GK-1 or G-series Guitar Controller

To connect the GK-1 or G-series Guitar Controller (G-707, G-202, G-303, G-505 or G-808), use the optional Bus Converter BC-13.

*Be sure to use the supplied cable C-13A and the GR's connection cable C-24G.

*Refer to the BC-13's owner's manual to see how the functions are assigned to the guitar's Volume Knobs and switches.

*Refer to the BC-13's owner's manual for the details of the setup using the BC-13.

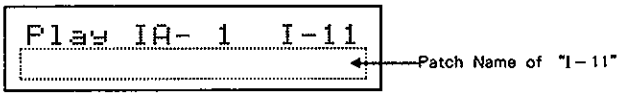


[3] PREPARING TO PLAY

1. Power-up

Step 1 **Make sure that the GR-50 is correctly setup with external devices, then switch on the GR-50.**

The **PLAY** and **PATCH CHAIN** indicators light in green showing that the GR-50 is in the Play mode.



Step 2 **Switch on the external devices, such as an amplifier.**

ROM Play

With the unit set to the Play mode (just after it is switched on), the preprogrammed songs (ROM Play) can be played as follows.

While holding **ENTER** down, press **PATCH CHAIN**, and the display respond with "Chain of Songs".
To play all the songs, press **ENTER**. To play a specific song, specify the song with **VALUE**, then Press **ENTER**.
To stop playing, press **ENTER**. To return to a normal condition (Play Mode), stop playing then press **PLAY**.

2. Output Adjustment of the Guitar Controller

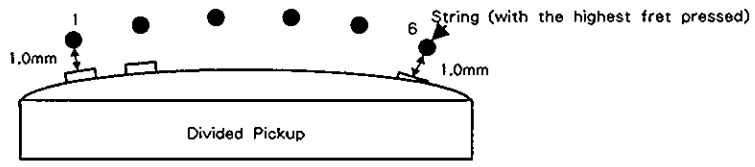
In this section, you adjust the sensitivity of the GR-50 and the output level of the devided pickup on the GK-1 or the guitar controller.
These adjustments are very important in changing the nuance of the sound, and for taking full advantage of the GR-50's superior tracking.

When using the GK-2

[Adjusting the Divided Pickup]

When using the GK-2, check if the divided pickup is about 1.0mm high from the strings with the highest fret pressed.

How to install the GK-2 to the guitar is explained in the operation manual of the GK-2.

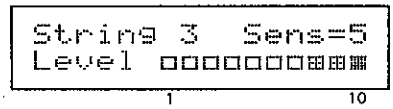


[Adjusting the Sensitivity]

Adjust the The GR-50's sensitivity depending on the output level from each divided pickup of the GK-2.

Step 1 **With the unit set to the Play mode, press [TUNE] to turn to the Tuning mode. (The indicator of [TUNE] lights up in red.)**

Step 2 **Press [▲] button in [PARAM A] once to make the display respond as shown below.**



The upper line shows the last string played and the GR-50's sensitivity set for that string. The level meter changes in 10 levels by playing the string.

Step 3 **Adjust the sensitivity for each string respectively. Set it so that the level meter will light up to the far right (10) occasionally when you play in the strongest manner you might use during actual live performance, using the S1/S2 switches on the guitar or [VALUE].**

●When the level meter has gone too far (always lights up to the far right), decrease the value of sensitivity.
●When the level meter dose not light at all up to far right (10), increase the value of sensitiviry.

Repeat the above procedure to set sensitivities for all the strings.

If you do not succeed in adjustment, change the distance between the strings and pickups then try again.

●If the level is too high even at value "1", make the distance wider.
●If the level is too low even at value "8", make the distance narrower.

Step 4 **Press [PLAY] or [– PAGE] to return to the Play mode. (The indicator of [PLAY] changes to green.)**

If you find the adjustment unsuccessful when actually playing the guitar, select the step 2's display, then repeat adjustment.

When using the GK-1 or G-series Guitar Controller

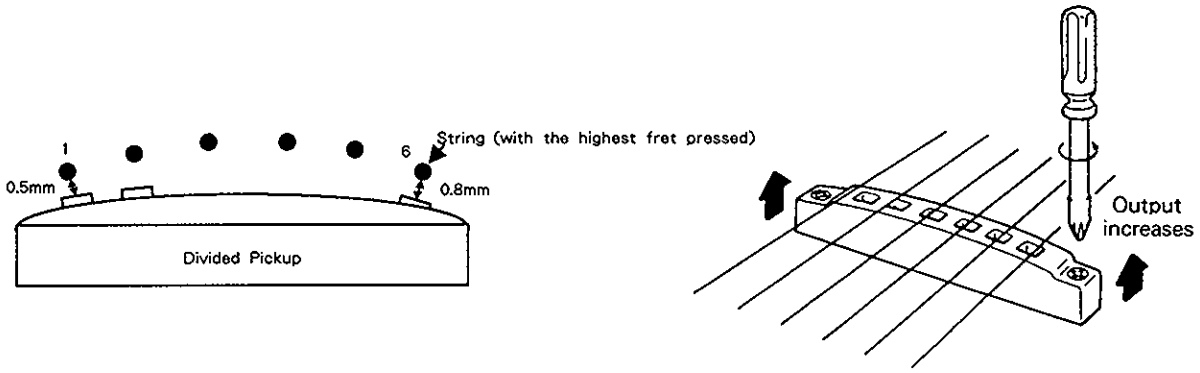
[Adjusting the Divided Pickup]

When using the GK-1, check if the divided pickup is about 0.5mm high from the strings with the highest fret pressed.

How to install the GK-1 to the guitar is explained in the operation manual of the GK-1.

When using a G-series guitar controller, adjust the height of the divided pickup with a screw driver (Phillips) as shown in the picture.

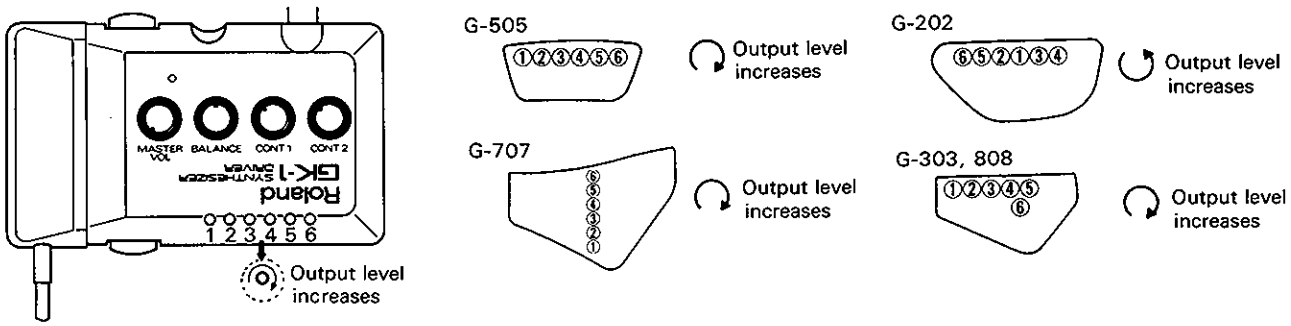
G-Series Guitar Controller



[Adjusting the Output Level]

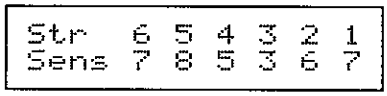
The GK-1 and a guitar controller feature output adjusting controls for the divided pickup. Call the sensitivity setting display in the Tuning mode of the GR-50, then adjust the output volume.

- **When using the GK-1, use the supplied screw driver or any narrow screw driver.**
- **When using a guitar controller, remove the rear cover, and adjust the volume by rotating the output adjusting controls with a screw driver.**



Step 1 **In the Play mode, press [TUNE] to change to the Tuning mode. (The indicator of [TUNE] lights in red.)**

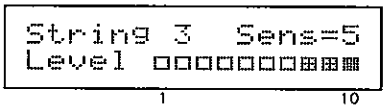
Step 2 **Press [▼] button in [PARAM A] once.**



The upper line shows the string numbers, while the lower line shows the sensitivity currently set for each string.

Step 3 **Set value "5" for all the strings. Press [PARAM B] (the cursor appears under the value), then move the cursor to the value, to be adjusted with [PARAM B], then set value "5" with [VALUE].**

Step 4 **Press [▼] button [PARAM A] once.**



The upper line shows the last string played and the GR-50's sensitivity set for that string. The level meter changes 1 to 10 by playing the string.

Step 5 **Adjust the output level for each the divided pickup. Rotate the Volume Control of the guitar so that the level meter will light up to the far right (10) occasionally when you play in the strongest manner you might use during actual live performance.**
Repeat the above procedure for all the strings.

If you do not succeed in adjustment, change the distance between the strings and pickups, then try again.

- **If the level meter always lights up to the far right (10) even the Control Volume turns to the end, make the distance wider.**
- **If the level meter does not reaches at all to the far right (10) even the Control Volume turns to the end, make the distance narrower.**

Step 6 **Press [PLAY] or [– PAGE] to return to the Play mode. (The indicator of [PLAY] changes to green.)**

If you find the adjustment unsatifactory, select the step 4's display, then adjust again using the GR-50's sensitivity (do not use the Volume Control for guitar's output this time).

Use the similar method as "Sensitivity Adjustment" of the GK-2 explained in the previous section.

3. Tuning

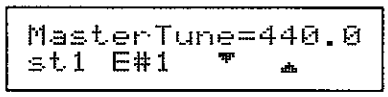
The Tuning mode facilitates tuning of a guitar and the internal sound source. There are two methods for tuning ; one is tuning each string of the guitar to the pitch of the internal sound source, and the other is tuning each string to a musical instrument, such as a piano, then tuning the internal sound source to it. The pitch of the internal sound source is called Master Tune.

*The set pitch (frequency) is retained even after the unit is switched off, without using the writing procedure.

a. Tuning the guitar to the pitch (Master Tune) of the internal sound source

The Master Tune of the GR-50's internal sound source can be set at from 430.0 to 449.9Hz (frequency of the standard pitch, A4)

Step 1 **In the Play mode, press [TUNE] to change to the Tuning mode. (The indicator of the [TUNE] lights in red.)**



The upper line of the display shows the frequency of Master Tune, while the lower line shows the string number played last and the note name that is the closest to the frequency of the string. The two triangles represent the gap between the string's current pitch and the proper pitch as derived from Master Tune.

Step 2 **Press [VALUE] to set the frequency of Master Tune.**

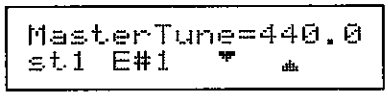
Step 3 **Play a string, and the display shows the note name that is the closest to the played string, and two triangles. Then adjust the peg so that the two triangles match. Repeat the same procedure for all six strings.**

Step 4 **Press PLAY or [−PAGE] to return to the Play mode. (The indicator of the PLAY changes to green.)**

b. Tuning the guitar to another musical instrument

Step 1 **Tune the guitar to some other instrument.**

Step 2 **In the Play mode, press [TUNE] to change to the Tuning mode. (The indicator of [TUNE] lights in red.)**



The upper line of the display shows the frequency of the Master Tune, while the lower line shows the string number played last and the note name that is the closest to the frequency of the string. The two triangles represent the gap between the string's current pitch and the proper pitch as derived from Master Tune.

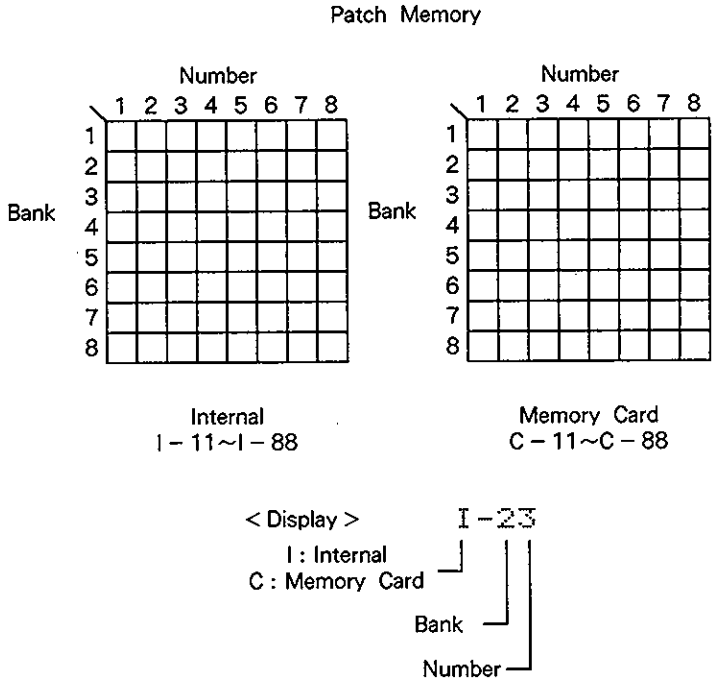
Step 3 **Play a string, and two triangles appear in the display. They represent the gap between the pitch of the played string and that of the Master Tune. Press [VALUE] to adjust the Master Tune so that the triangles match.**

Step 4 **Press PLAY or [– PAGE] to return to the Play mode. (The indicator of PLAY changes to green.)**

4 PLAYING

1. Patch Selection

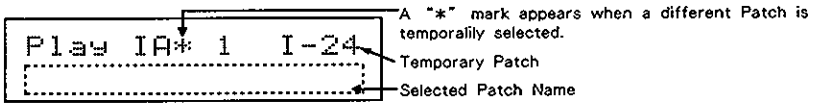
Let's play the GR-50's internal sounds. The GR-50 can retain up to 64 Patches and another 64 on a memory card. You can thus select any of the 128 Patches. A Patch is shown in the display as two-figure numbers, the Bank (1 to 8) and Number (1 to 8).



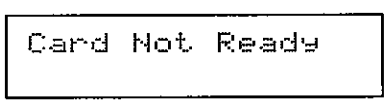
Patch selection on the GR-50 is basically done using the Patch Chain function, but it is also possible to call a single patch temporarily.

Use GROUP, BANK and NUMBER to specify a Patch. This applies to Patch selection directly from the FC-100.

The display responds as shown below.

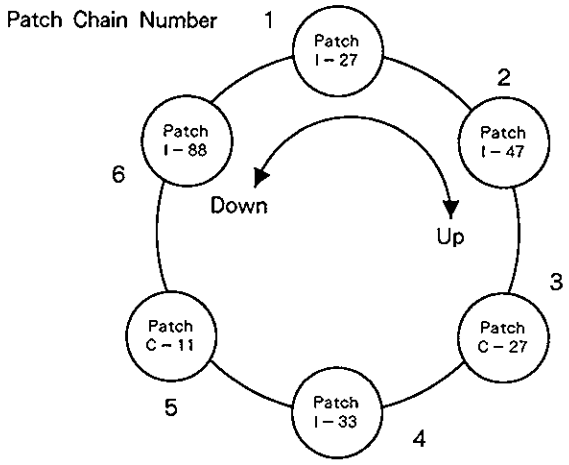


*If you try to select a Patch stored on a memory card without the card connected, the following error message is shown. The Patch of the same number in the internal memory is selected instead.



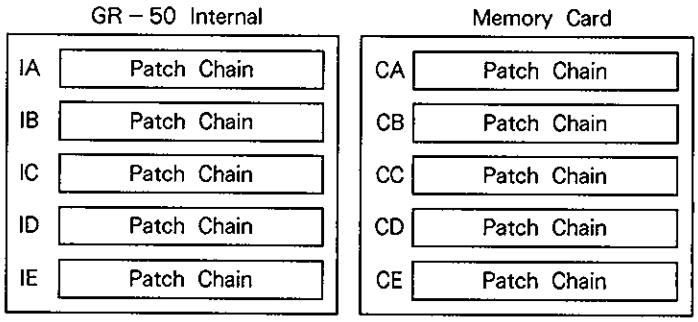
2. Patch Selection using the Patch Chain Function

The GR-50's Patch Chain function allows you to link up to 25 different Patches in a desired order, then quickly call them in the same sequence during live performance.



The above is an example of a Patch Chain using six Patches. Just by pressing a button, these Patches are shifted up or down as the arrow shows.

Up to 25 different Patches can be arranged in one chain. The internal memory can retain five such Patch Chains (IA, IB, IC, ID, IE), and an optional memory card can store another five (CA, CB, CC, CD, CE).



To perform Patch selection with the Patch Chain function, set the GR-50 to the Play mode, and use a button on the GR-50, the pedal switches on the FC-100 (optional) or the switches on a guitar controller.

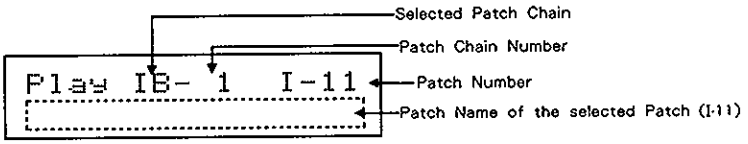
***When the Patch Chain is at number 1, the indicator on PATCH CHAIN lights in green. It does not light when any other number is selected.**

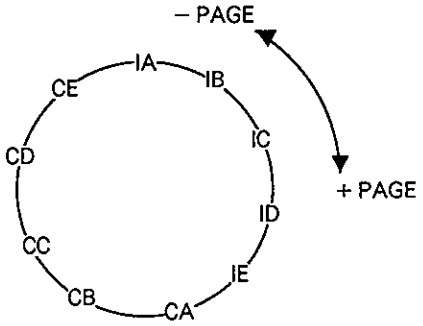
a. Patch Selection on the GR-50

Each press of [ENTER] will give you the next higher number within the Patch Chain being used.

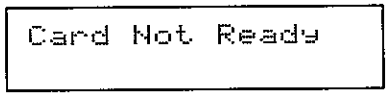
*On the GR-50 backward selection (lower numbers) within the Chain is unavailable.

To select a Patch Chain, use [−PAGE] or [+PAGE]. Pressing the buttons will offer selection of Patch Chains as shown below.





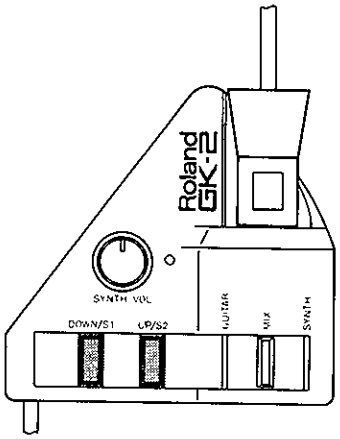
*If you try to select a Patch Chain on a memory card (CA to CE) without the memory card connected, the following error message appears, meaning that Patch Chains CA to CE cannot be selected.



b. Patch Selection from a Guitar Controller

When the GR-50 is released from the manufacturer, it is set so that Patch Chain operations can be performed from the GK-2 or guitar controller.

●When using the GK-2 Pressing DOWN/S1 will take you to lower numbers within the Patch Chain. Pressing UP/S2 will move you through the upper numbers.



*Pressing the S1 and S2 at the same time will select Patch Chain Number 1.

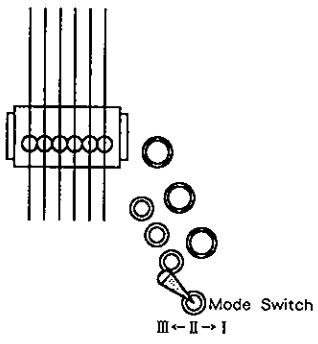
*These switches cannot change Patch Chains. Use **[− PAGE]** and **[+ PAGE]** on the GR-50.

*These switches can be assigned to different functions other than the above Patch selection. (See page 30 "Function Assignment to Guitar's Switches".)

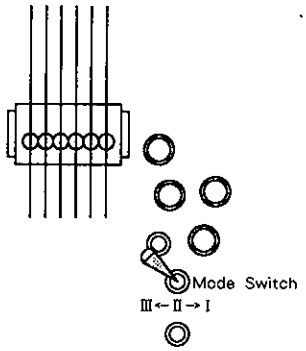
●When using a G-series Guitar Controller

Pushing the "Mode Switch" to the "I" position will set the GR-50 to decrease the Patch Chain numbers in a Patch Chain. Pushing the switch to the "III" position will set the GR-50 to increase the Patch Chain numbers.

G-707



G-202、303、505、808



●When using the GK-1 The GK-1 does not feature Control Switches, and therefore cannot perform Patch selection.

Number of Partials and Voices

The GR-50 can produce a maximum of 32 voices using 32 Partials at the same time. The maximum number of voices, however, may be reduced depending on the number of Partials used for a Tone. A Tone consists of one to four Partials for each voice. A Tone made of only one Partial can be played using 32 voices, but a Tone using two Partials has 16 voices, and a Tone using four Partials is 8 voices polyphonic. For example, to play all the six strings in the Dual mode (two Tones) using three partials for each Tone, 36 Partials (6 × 2 × 3) will be required for playing all the six strings simultaneously. Being four Partials short, one Tone and one Partial will be missing. It is very important that you have a full understanding of this concept.

When playing the internal sound source using both the guitar controller and external MIDI controller, be aware that the guitar controller will have priority, and that the multi timbral performance may not be achieved depending on the settings of Tone or performance controlling functions.

*When the GR-50 is played with a guitar controller and if all the 32 Partials are already used, they will be played based on Last Note Priority system, that is, the previous sound will be left out.

*When playing the GR-50 with an external MIDI controller in the Multi Timbral, you can select whether to play based on First Note Priority or Last Note Priority, with the "Assign Mode" in the Timbre parameters (See page 113).

Patch and Timbre Displays

The GR-50 offers two types of displays for Patch and Timbre numbers. You can select the display that suits you best. For example, when changing Patches with Program Changes, you can select "Display Mode 2" to make the display show Patch numbers in the same way as the program change numbers. (See page 121 , 48, 49)

e.g.) C – 11 → 65 (Patch)
I – 888 → I – 128 (Timbre)

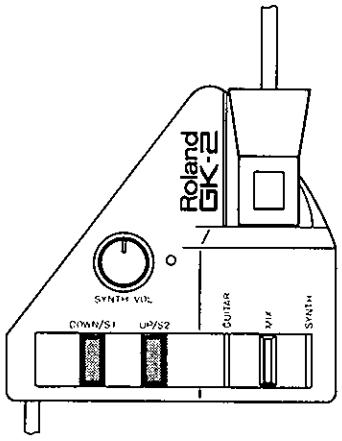
This owner's manual bases all explanations on Display Mode 1.

3. Function Assignment to Guitar's Switches

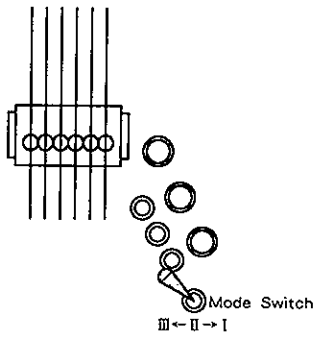
Various functions can be assigned to the switches on a guitar controller ; Patch Chain Up/Down, Modulation, Sostenuto-S, Octave Up. These assignments are not set for each Patch, and therefore not affected by Patch changing.

Switches Accepting Function Assignment

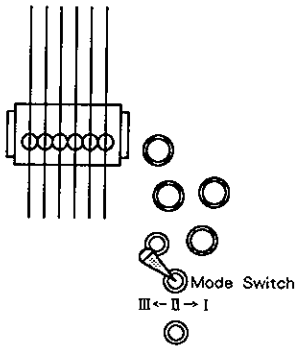
GK-2	Functions can be assigned to the S1 and S2 switches
G-series guitar	Functions can be assigned to the Mode Switch. Pushing the Mode Switch to the I side turns S1 on, and pushing it to the III side turns S2 on.
GK-1	Function assignment cannot be done.



G-707



G-202、303、505、808



Assignable Controls

GK-2 G-Series	S1 Mode Switch I	S2 Mode Switch III
Off	○	○
Patch Chain Down	○	×
Patch Chain Up	×	○
Modulation	○	○
Sostenuto – S	○	○
Octave up	○	○

●OFF Set to OFF when you do not wish to use any controllers.

●Patch Chain Down This allows you to decrease Patch Chain numbers in a Patch Chain by pressing the relevant switch.

●Patch Chain Up This allows you to increase Patch Chain numbers in a Patch Chain by pressing the relevant switch.

*Provided that S1 is Patch Chain Down, and S2 is Patch Chain Up, pressing S1 and S2 together will give you Patch Chain number 1.

●Modulation This adds vibrato effect to the sound being played. ON provides the maximum effect, while OFF turns off the effect.

*Depending on the LFO Depth and Modulation Sensitivity (Partial Parameter) in the LFO Group of Tone Parameters , the Partial may not take on the modulation effect. (See page 98 "LFO Group" in "Tone Editing".)

*When the MIDI Control Modulation Switch in the System Setup Mode (See page 123) is set to OFF, the modulation of the internal sound source cannot be controlled.

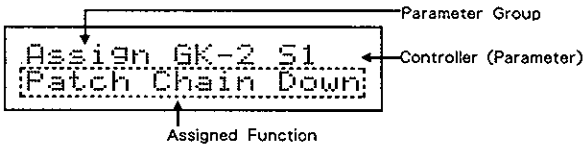
●Sostenuto - S When this is turned on while strings are being played, the playing sound is sustained. Even while the Sostenuto-S is on, the other strings can be played as usual, thus a unique effect can be obtained.

●Octave Up When on, shifts the playing sound one octave upward.

Control Assignment Procedure

Step 1 **Press [SYSTEM] to enter the System Setup mode.**

Step 2 **Press [PART] to select the Parameter Group which "Control Assign" belongs to.**

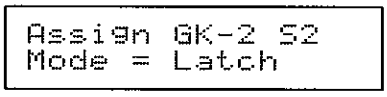


Step 3 **Press [PARAM A] to select the Controller where you wish to assign a function.**

S1 or Mode Switch I ••• "GK-2 S1"
S2 or Mode Switch Ⅲ ••• "GK-2 S2"

Step 4 **Press [VALUE] to select the function to be assigned.**

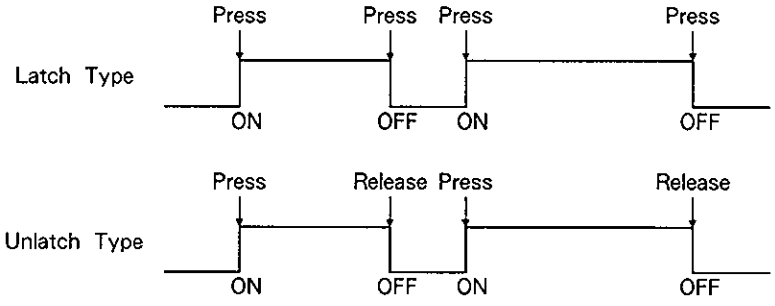
Step 5 **Press [PARAM A] to select the Switch Mode.**



● Switch Mode

There are two Switch Modes, "Latch" and "Unlatch".

The Latch mode remains ON from the moment the switch is pressed (pushed forward) and released (pushed back), untill it is pressed (or pushed forward) again.
The Unlatch mode remains ON from the moment the switch is pressed (pushed forward) untill it is released (pushed back).



＊The Switch Mode is irrelevant to the UP/DOWN Patch Chain function.

Step 6 **Press [VALUE] to select Latch or Unlatch.**

Step 7 **Repeat Steps 3 to 6 to set S1 and S2 Switches.**

Step 8 **Press PLAY or [−PAGE] to return to the Play mode. (The indicator of PLAY will light in green.)**

＊Set the unused controller to OFF to avoid operational complications.

＊For details, see page 124 "Control Assign" in "System Setup".

ADVANCED COURSE

1 Functions Of The GR-50	P. 36
2 Patch Editing	P. 57
3 Patch Chain	P. 75
4 Tone Editing	P. 81
5 Multi Timbre Setting	P. 107
6 System Setup	P. 118
7 Control Assign	P. 124
8 Data Transfer	P. 129

[1] FUNCTIONS OF THE GR-50

1. Three Ways of using the GR-50

There are three ways of using the GR-50: 1) playing the internal sound source via an external guitar, 2) converting performance data from a guitar controller to MIDI data and output it from the MIDI OUT socket, and 3) playing the internal sound source via MIDI messages fed into the MIDI IN (multi-Timbral sound module).

*The GR-50's newly developed LSI and a high speed digital signal converting system perform complete analyeis of guitar's signale for a high speed and atable tracking. Also, the built-in guitar sound source assures axceedingly quick response. When using external sound modules only (when using the GR-50, like the GM-70, as a MIDI convarter), assign Preset Rhythm Tone r64 to the 1st and 2nd Tones of each string and set each Part to OFF. In this way, you are assure to obtain even better response for the external sound modules. For detailed explanation about "r64", see page 43 "Rhythm Part", and about setting Parts to OFF, see page 109 "MIDI Channel".

[1] Playing the Internal Sound source via an External Guitar (The most common useage)

Two Tones of the internal sound source (LA synthesis) are assigned to each of the guitar's string and played via the guitar. You can set which Tones should be played by which string for each Patch using Patch Common and Patch Internal parameters in the Patch Editing. If you wish to edit Tones, perform Tone Editing.

[2] Playing an External MIDI Sound Module

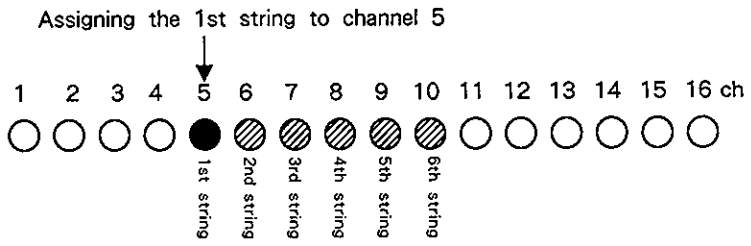
The GR-50 can convert the performance data sent from a guitar controller into MIDI messages, then, using the MIDI messages, play the MIDI sound module connected to the MIDI OUT socket according to the Patch External settings of the GR-50.
You can set how the performance messages should be converted into MIDI data, or how MIDI messages should be transmitted by editing the Patch Common and Patch External parameters.

1) MIDI Channel and Mode

MIDI messages are communicated on MIDI channels. Only when the MIDI channels of the transmitter and receiver match communication takes place. By using different MIDI channels, more than one sound module can be simultaneously controlled. To play an external MIDI sound module, it is necessary to set the GR-50's transmit channel to the same number as the receive channel of the sound module.

There are two MIDI modes, Poly and Mono. The Poly mode allows the control of more than one message on one channel at a time, while the Mono mode allows only one MIDI message on one channel. The GR-50 can select either mode.

In the Poly mode, all the strings of a guitar are transmitted on a single channel, and in the Mono mode, six consecutive channels are assigned to the strings (the assignment of 1st string's channel sets the other string's channels automatically as shown below), allowing individual output on the respective channels. Poly or Mono mode should be correctly selected for proper performance. If not, problems will occur, such as only one string is played, or a chord is not played properly.


Assigning the 1st string to channel 5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ch
1st string
2nd string
3rd string
4th string
5th string
6th string

●Advantages of Mono Mode

In the Mono mode, six consecutive channels are assigned to the strings, allowing individual output to an external MIDI sound module on the respective channels.

The greatest advantage of this method is that it affords a more natural sound to the pitch changes occuring with choking and use of the tremonlo arm. In Poly mode strings more than one string are played with choking or use of tremolo arm, GR-50 is automatically set to chromatic mode. Since the GR-50 sends bender messages to represent changes in pitch, the Mono Mode is advantageous because pitch changes for each separate string can be conveyed to the sound source. Additionally, each string can carry separate program change messages, so a completely different sound can be obtained from each string.

●When the GR-50 is set to MIDI Poly Mode

In the Poly mode, the messages of all (1 to 6) strings are transmitted to an external MIDI sound module on a single channel. Therefore, the external MIDI device must be able to deal with six voice messages using only one MIDI receive channel. For instance, a MIDI keyboard (synthesizer, electronic piano), MIDI sound module for a keyboard (the Roland D or S series), etc can be used.

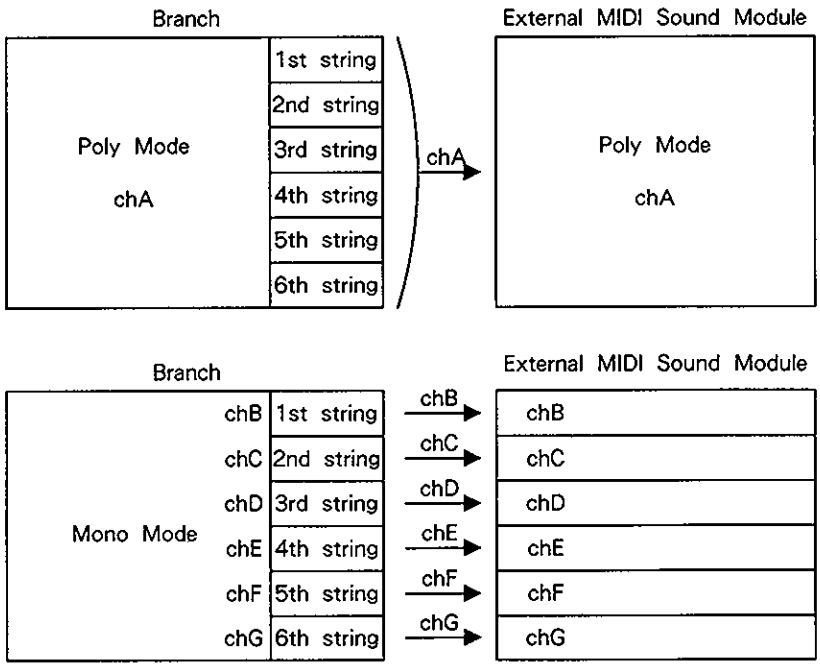
●When the GR-50 is set to MIDI Mono Mode

The external sound module must be able to set six different MIDI receive channels at the same time and to deal with the MIDI messages of each channel.

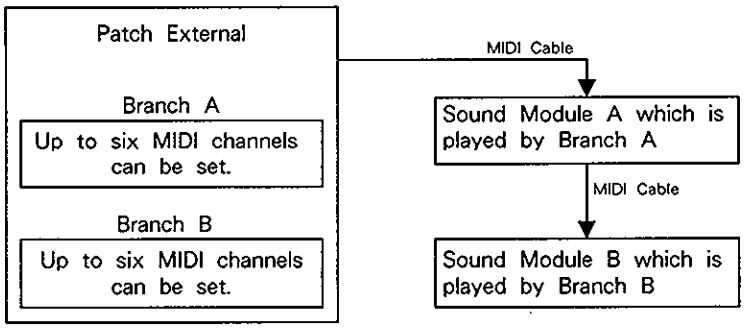
For instance, Multi Timbral sound module (S-550, S-330, MT-32, D-110, D-10, D-20) or MKS-70, MKS-50 can be used.

2) Branch

The GR-50 can control two different MIDI sound modules separately, with completely different MIDI settings, at the same time. The block where MIDI functions are set is called BRANCH. Performance messages are sent from the GR-50 via the MIDI channels (one in the Poly mode and six in the Mono mode) set in a Branch, to the external sound module that is set on the same channel(s).



The GR-50 has two Branches (A and B). Using these two Branches, many number of sound modules can be played in different MIDI settings.

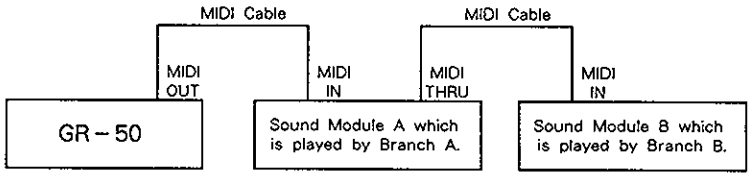

Patch External
Branch A
Up to six MIDI channels can be set.
Branch B
Up to six MIDI channels can be set.
MIDI Cable
Sound Module A which is played by Branch A
MIDI Cable
Sound Module B which is played by Branch B

*The MIDI OUT of the GR-50 works only in Poly/Mono mode of OMNI OFF.

Performance messages are always output from Branch A first, then from B. This fact means that sound module B receives performance data slightly later than sound module A. When playing more than one sound module, it may be wise to use Branch A for percussion type or piano sounds which require strictly tracking response.
Also, to avoid transmitting unnecessary performance data, set the unused Branch to OFF.

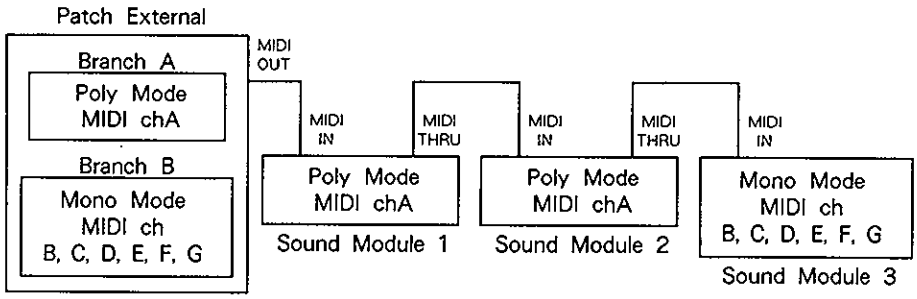
3) Connections

Connect the GR-50 and the external sound module as shown below.



4) Examples

The following example allows you to play Sound Module 1 and 2 with Branch A's settings, and Sound Module 3 with Branch B's. By setting Sound Modules 1 and 2 to different sounds, two different sounds can be mixed.



5) Transmitting Control Messages from External Units

The Control messages, received from switches on a guitar controller, from the FC-100 connected to the RRC IN socket or from the EV-5 connected to the FC-100, and MIDI Control messages, received from MIDI IN socket on a control channel, can be transmitted from the MIDI OUT socket. In other words, an external MIDI sound module can be controlled with the Performance Controlling functions of the GR-50. However, please note that the sound module you use may not feature the relevant controlling functions. (See page 120)

[3] Using the GR-50 as a Multi Timbral Sound Module

The internal sound source of the GR-50 can be played by the messages sent from the MIDI controller connected to the MIDI IN. At the same time, the GR-50 can be played by a guitar controller.

The GR-50 has two Synthesizer Parts and a Rhythm Part. Each Part works like a conventional sound module and has one receive channel.

You can set how each Part should be played with what kind of sound. This is called Part Setting.

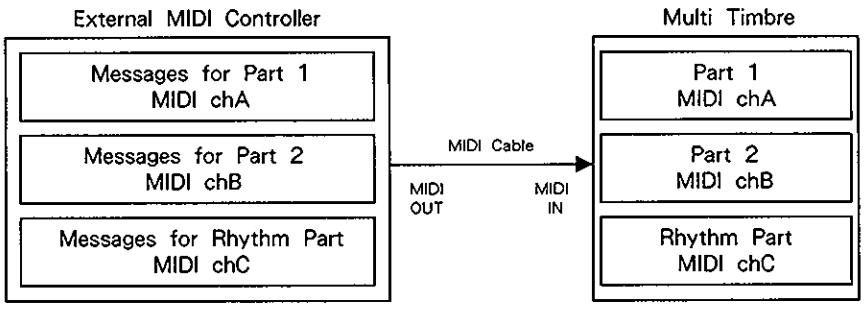
The sounds in Synthesizer Parts are determined by Timbre. A Timbre is accompanied by various parameters such as Key Shift, Fine Tune, etc. Setting these parameters is called Timbre Editing.

Also, in the Rhythm Part, Tones can be assigned to each note (key) separately. This Tone assignmet is called Rhythm Setup.

If you wish to edit Tones, perform Tone Editing.

1) MIDI

To play the internal sound source, it is necessary to set the external controller's transmit channel to the same number as the receive channel of each Part of the GR-50.



* The MIDI IN of the GR-50 works only in Poly mode of OMNI OFF.

MIDI controllers suitable for use with the GR-50 should be able to control more than one MIDI sound module at the same time, e.g. :

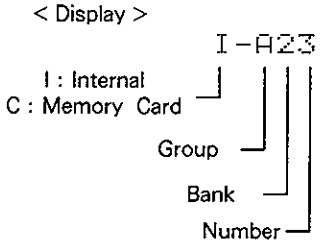
MC-500 (software : MRC-500)
MC-500MKII (software : SUPER MRC)
MC-300 (software : MRC-300)
S-550 (software : SYS-553)
S-330 (software : SYS-333)

2) Synthesizer Part

Any of the 256 different Timbres can be assigned to each Synthesizer Part using relevant Program Changes.(A Timbre consists of Tones and Performance Controlling functions.) Program Change numbers correspond with the Timbre numbers of the GR-50 as shown below.

Group	Number / Bank	0	1	3	4	5	6	7	8
A	1	1	2	3	4	5	6	7	8
	2	9	10	11	12	13	14	15	16
	3	17	18	19	20	21	22	23	24
	4	25	26	27	28	29	30	31	32
	5	33	34	35	36	37	38	39	40
	6	41	42	43	44	45	46	47	48
	7	49	50	51	52	53	54	55	56
	8	57	58	59	60	61	62	63	64
B	1	65	66	67	68	69	70	71	72
	2	73	74	75	76	77	78	79	80
	3	81	82	83	84	85	86	87	88
	4	89	90	91	92	93	94	95	96
	5	97	98	99	100	101	102	103	104
	6	105	106	107	108	109	110	111	112
	7	113	114	115	116	117	118	119	120
	8	121	122	123	124	125	126	127	128

< Display >



*Depending on the Display Mode selected, the Timbre number is shown in the display in different forms.(See page 121 <Display Mode> in "System Setup Parameters".)

e.g. I－A88→I－64
I－B88→I－128

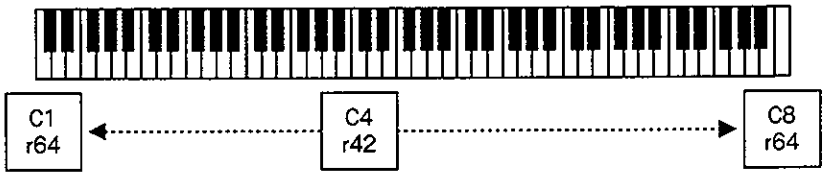
*When the Timbre in the Part currently in use is an internal Timbre, the received Program Change number will select the corresponding Timbre in the internal memory. If the Timbre comes from a memory card, the same Program Change number will select the corresponding Timbre on the memory card.

*When a memory card is not connected, the relevant internal Timbre is selected.

*Patches on the GR-50 can be changed by Program Change messages sent on the Control channel from an external sound module. (See page 120 "System Setup".)

3) Rhythm Part

In the Rhythm Part, a different Rhythm Tone can be assigned to each note (key), and will therefore be played by MIDI key messages received at the relevant note name.
64 different Rhythm Tones are provided in the Rhythm Part. r64, however does not sound (OFF).

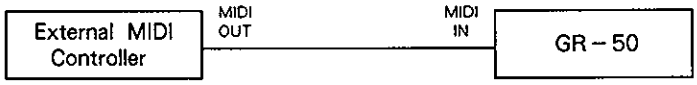


<e.g>
When Preset Rhythm Tone r42 is assigned to note number C4, r42 Tone plays when C4 note is received.

*When you are using a guitar synthesizer, the Multi Timbral sound source may not sound at all. This happens because the guitar synthesizer is given priority in using Partials, and all Partials have already been used by the guitar synthesizer. (See page 29 "Partials and Number of Voices".)

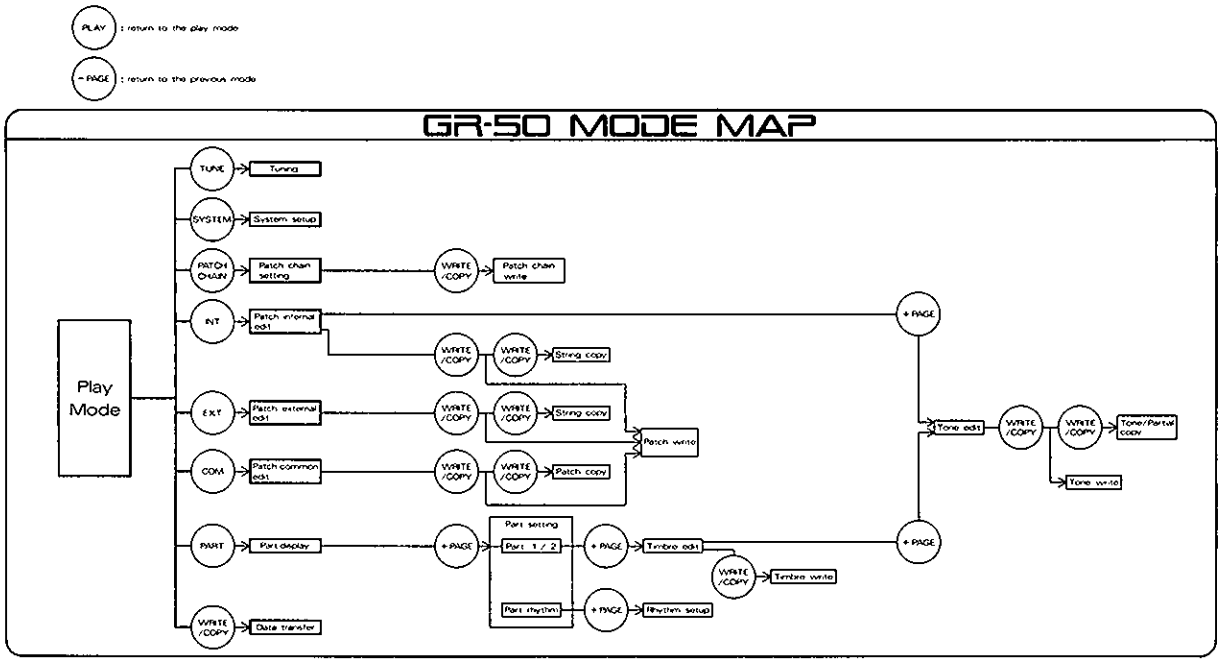
4) Connections

Connect the GR-50 to the external devices as shown below.



2. The Operation Modes and Basic Procedure

Please study the following operation modes of the GR-50 to access the mode you want.



a. Operation Modes

Play Mode — This may be called the normal condition of the GR-50. In this mode, you can play the Patch Chain.

Patch Chain Setting Mode — In this mode, you can set the Patche Chain which is currently selected in Play Mode.

Tuning Mode — Turn to this mode for tuning the GR-50 or guitar controller.

System Setup Mode — This mode covers the procedures related to GR-50's overall condition, such as Memory Protect, Control Switch Assignment, etc.

Patch Edit Mode — This mode allows you to edit parameters for controlling the internal or external sound source via a guitar.

- **●Patch Common Edit Mode** — This mode is used for editing Patch Names, Reverb or Velocity settings.
- **●Patch Internal Edit Mode** — Use this mode when playing the internal sound source via a guitar, for editing the Tone assignment to each string and how to play Tones.
- **●Patch External Edit Mode** — Use this mode when controlling the external MIDI sound source via a guitar controller, for setting MIDI channels or selecting Mono or Poly mode, etc.

Part Display Mode — This mode allows you to monitor the setting of Part 1, 2 or the Rhythm Part. Selecting a different Patch in this mode will enter the Play mode.

Multi Timbral Edit Mode — This mode allows setting of parameters when using the GR-50 as a Multi Timbral sound source.

- **● Part Setting Mode** — In this mode, you can set MIDI channel and volume of each Part, or Timbre assignment in the Synthesizer Part.
- **● Rhythm Setup Mode** — In this mode, you can set the Rhythm Tone assignment to Key numbers and how Tones should be played.
- **● Timbre Edit Mode** — This mode sets the Tone assignment to a Timbre in a Synthesizer Part and how to play the Tone.

Tone Edit Mode — This mode allows you to edit a Tone.

Data Transfer Mode — This mode allows you to transfer data between the GR-50 and a memory card or between the GR-50 and another device.

Write/Copy Mode

Select this mode for writing your edited version of a Patch, Timbre, Tone or Patch Chain.

To move from one mode to another, use the buttons as shown below :

b. Functions of Buttons

TUNE **PLAY**

Pressing this button turns the unit to the Play mode.
Pressing this button in the Play mode changes to the Tuning mode.
This button lights in red in the Tuning mode, and it lights in green in the Play mode. In the other modes, the button remains dark.

PATCH CHAIN

Pressing this button enters the Patch Chain Setting mode, and the indicator of the button lights in red.
In the Play mode, when Patch Chain Number 1 is selected, the indicator of this button lights in green, while it remains dark when any other number is used. This button is also lit in red in the Patch Chain Write mode, while it remains dark in any other mode.

PART **STRING**

Press this button to monitor the Part setting and change displays. In an Editing mode, press it for changing the settings of a Part or strings.

GROUP **PARAM A**

In the Play mode, press this button to select I (Internal) or C (Memory Card). In an Editing mode, press it for selecting a Parameter Group or parameter.

BANK **PARAM B**

In the Play mode, press this button for selecting a Patch Bank. In an Editing mode, press it for selecting a parameter.

NUMBER **VALUE**

In the Play mode, use this button to select a Patch Number. In an Editing mode, press it for changing values.

INT

Press this button for editing Patch Internal.

EXT

Press this button for editing Patch External.

COM

Press this button for editing Patch Common.

SYSTEM

Press this for changing parameters related with the entire system.

– PAGE

In the Play mode, press this button to change Patch Chains. If this button is pressed while the Patch Chain Button is being held down in the Patch Chain Setting mode, the Patch will be deleted. Pressing it in modes other than the Play mode will reverse it to the previous a mode.

+ PAGE

In the Play mode, press this button to change Patch Chains. If this button is pressed while the Patch Chain Button is being held down in the Patch Chain Setting mode, the Patch will be inserted. Pressing it in Patch Internal edit, Part display, Part setting, or Timbre edit modes enters to the Part, Timbre or Tone Editing modes.

WRITE/COPY

Pressing this button in the Play mode enters the Data Transfer mode. Pressing it in an Editing mode enters the Write/Copy mode.

ENTER

Pressing this button in the Play mode will change Patch Chain numbers in the Patch Chain currently selected. In the Patch Chain Setting mode, this button also changes Patch Chain numbers. In modes other than these, press it for executing the Data Transfer or Write/Copy procedure.

*When you become uncertain as to which mode you are in, you can press PLAY to return to the Play mode. Here, the indicator of PLAY lights in green.

Functions of [STRING], [PARAM A], [PARAM B] and [VALUE] buttons

The functions of these buttons vary depending on the mode currently used. See the table shown below.
When the Display mode in the System Setup is set to 1.

Mode \ Button	STRING PART	PARAM A GROUP	PARAM B BANK	VALUE NUMBER
Play	To Part Display Mode	← Selecting a Patch →		
		Internal /Memory Card	Selecting a Bank	Selecting a Number
Tuning	----	← Selecting a Parameter →		Changing the Value
			Move the Cursor	
System Setup	← Selecting a Parameter →			Changing the Value
	Selecting a Parameter Group	Selecting a Parameter		
Patch Chain setting	----	← Selecting a Patch →		
		Selecting the Internal, Memory Card or "End"	Selecting a Bank	Selecting a Number
Patch Chain Write	----	----	← Selecting a Patch Chain →	
			Internal /Memory Card	A~E
Patch Internal Edit	Selecting a String	← Selecting a Parameter →		Changing the Value
		Selecting a Parameter Group	Selecting a Parameter	
Patch External Edit	Selecting a Branch	← Selecting a Parameter →		Changing the Value
		Selecting a Parameter Group or String	Selecting a Parameter	
Patch Common Edit	----	← Selecting a Parameter →		Changing the Value
		Selecting a Parameter Group	Move the Cursor	
Patch Write / Copy	----	← Selecting a Patch →		
		Internal /Memory Card	Selecting a Bank	Selecting a Number
String Copy	----	----	----	----
Part Display	Selecting a Part	← Selecting a Patch →		
		Internal /Memory Card	Selecting a Bank	Selecting a Number
		To Play Mode		
Part Setting	Selecting a Part	← Selecting a Parameter →		Changing the Value
			Selecting a Timbre Group (IA/IB/CA/CB)	
Rhythm Setup	Selecting a Note Name	← Selecting a Parameter →		Changing the Value
Timbre Edit	----	← Selecting a Parameter →		Changing the Value
			Selecting a Tone Group	
Timbre Write	----	← Selecting a Timbre →		
		IA/IB/CA/CB	Selecting a Bank	Selecting a Number
Tone Edit	← Selecting a Parameter →			Changing the Value
	Selecting a Block	Selecting a Parameter Group Selecting a Parameter	Selecting a Parameter Moveing the Cursor	
Tone Write / Copy	----	----	← Selecting a Tone →	
			Selecting a Group	Selecting a Number
Partial Copy	Selecting a Partial	----	← Selecting a Tone →	
			Selecting a Group	Selecting a Number
Data transfer	----	Selecting a Function	Selecting a Block	----

For selecting a Patch and Timbre, the functions of [PARAM A] [PARAM B] and [VALUE] button vary depending on the current Display mode (in the System Setup) as shown below.

When the Display mode is set to 2.

Button		PARAM A GROUP	PARAM B BANK	VALUE NUMBER
Selecting a Patch		Change by the ±64	Change by the ±10	Change by the ±1
Selecting a Timbre	Part Setting Mode	Selecting a Parameter	Internal/Memory Card	Change by the ±1
	Timbre Write Mode	Internal/Memory Card	Change by the ±10	Change by the ±1

Functions of the Guitar Switches during the Editing mode

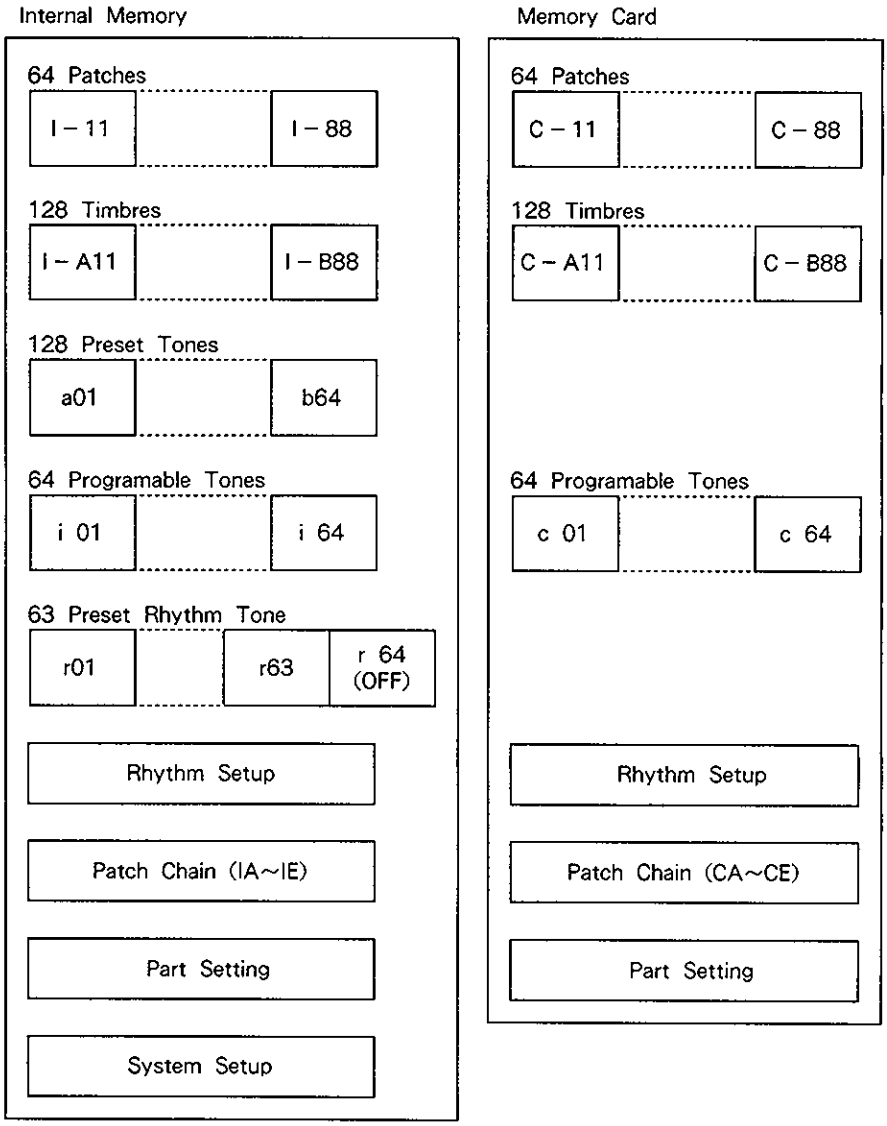
In modes other than Play, Patch Chain Setting, Control Assign in System Setup mode, or Part Display mode, the guitar's switches (S1/S2 : Mode Switches I/III) will behave like [VALUE] in the relevant mode. Using the switches, therefore, you can change the values of the parameter currently selected.

c. Memory

The GR-50 employs a number of different types of units, such as Patch, Timbre, Tone, etc. This section explains each unit, its data type, and the paths it takes.
All data can be saved onto a memory card using the Data Transfer function. See page 129 "Data Transfer".

Data which can be written in the Internal Memory or on a Memory Card

The GR-50's internal memory, or a memory card (M-256D, M-256E) can store data as shown below.

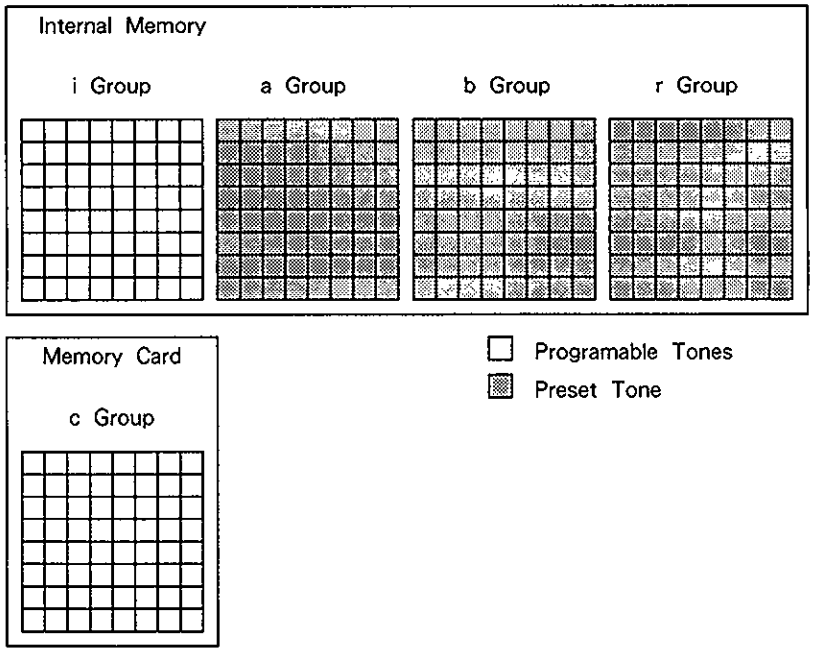


*Patch, Timbre, Tone and Patch Chain on a memory card can be called at any time you like.

Each data unit

● Tone

The GR-50's memory can store up to 128 Preset Tones (a and b groups), 64 user-programmed Tones (in i group) and 64 Preset Rhythm Tones (r group). A memory card can store 64 user-programmed Tones (c group).



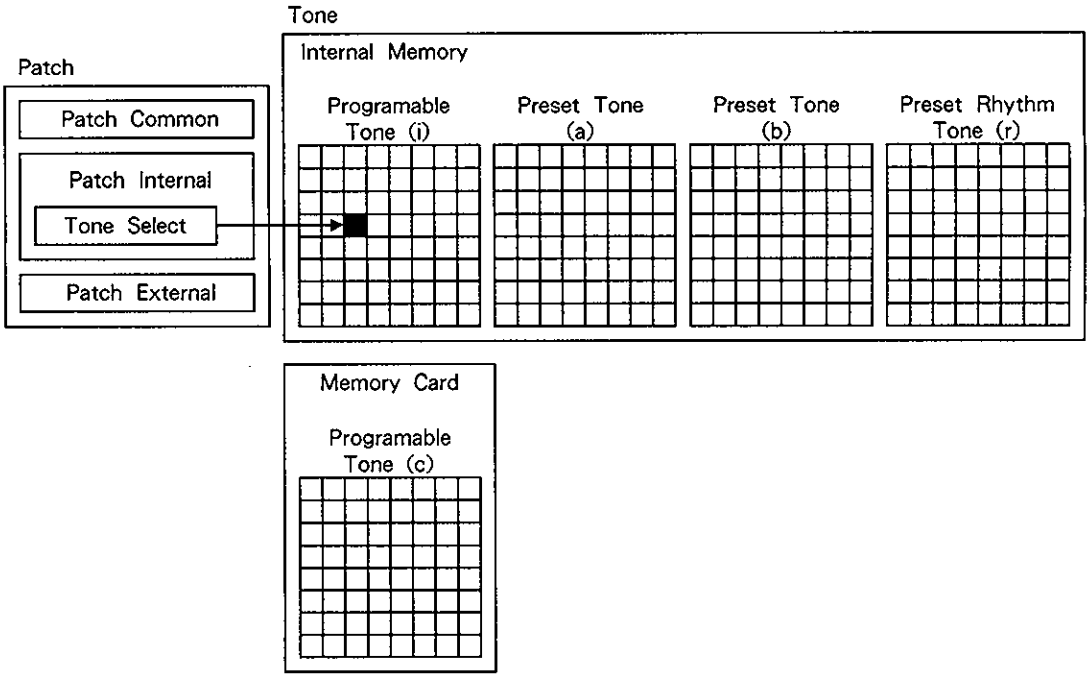
*Preset Tones (a, b and r groups) cannot be rewritten, but can be edited and written into user-programmed Tones.

*User-programmed Tones (i and c group) can be edited and rewritten.

The edited Tone data will be erased by selecting a different Tone or switching the unit off, unless it is written into a Tone memory using the appropriate writing procedure. (See page 105 < Tone Writing > in "Tone Editing".)

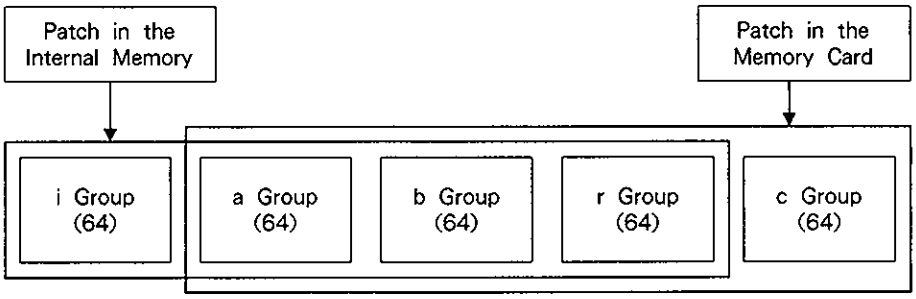
● Patch

Up to 64 different Patches can be stored in the GR-50's memory and another 64 on a memory card.



Any Preset Tones (a, b and r groups) can be used for both the internal and card memories, but Internal user-programmed Tones (i group) cannot be used for the Patches on a memory card or memory card Tones (c group) cannot be used for the Patches in the internal memory.

Tones which can be assigned to Patches are as follows.

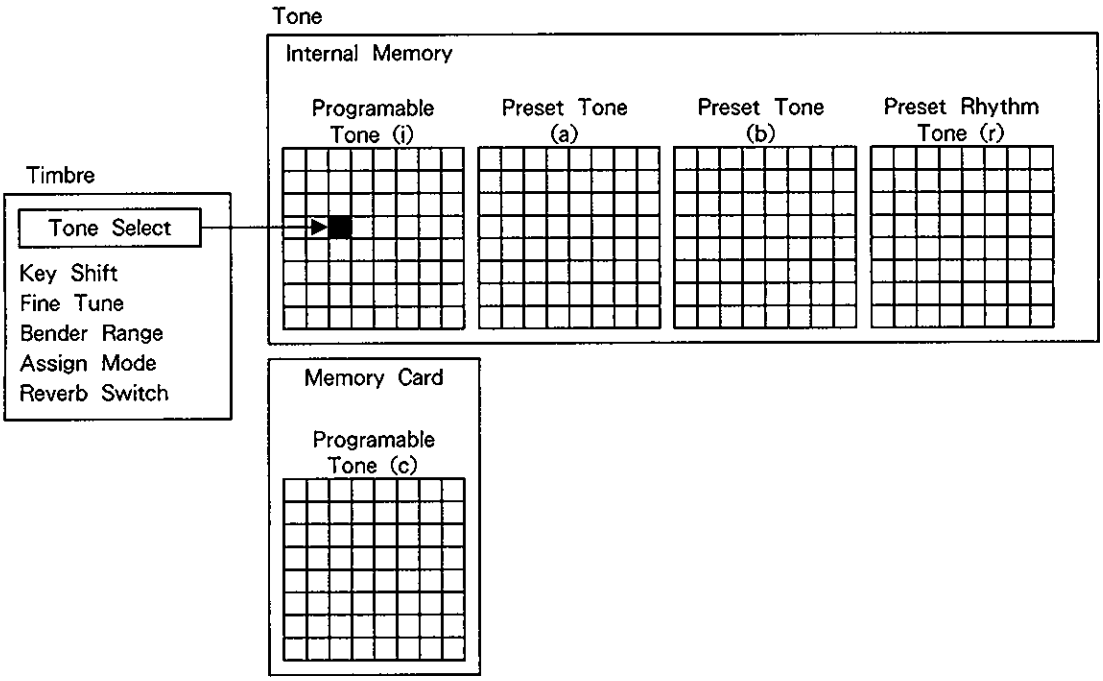


When you are writing a Patch into a memory card, but Internal Tones (i group) are assigned to that Patch, the Internal Tones will be automatically switched to Tones (c group) of a memory card.

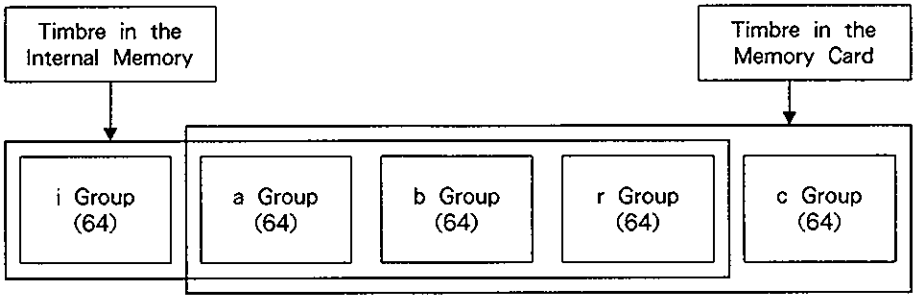
The edited Patch data will be erased by selecting a different Patch or switching the unit off, unless it is written into a Patch memory using an appropriate writing procedure.(See page 73 < Patch Writing > in "Patch Editing".)

● Timbre

Up to 128 different Timbres can be stored in the GR-50's memory and another 128 on a memory card.



Tones which can be assigned to Timbres are as follows :



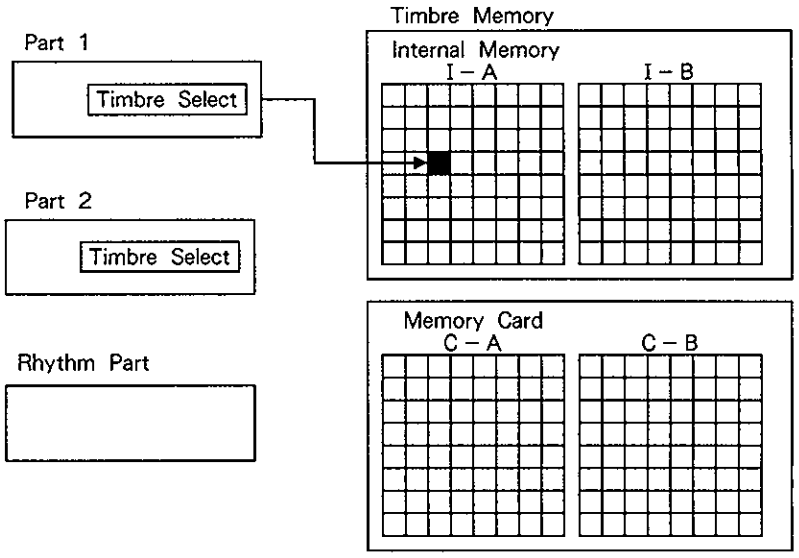
Any Preset Tones (a, b and r group) can be used for Timbres in the internal memory and on a memory card, but Internal user-programmed Tones (i group) cannot be used for the Timbres on a memory card or memory card Tones (c group) cannot be used for the Timbres in the internal memory.

*When you are writing a Timbre into a memory card but Internal Tones (i group) are assigned to that Timbre, the Internal Tones will be automatically switched to Tones (c group) of a memory card.

The edited Timbre data will be erased by selecting a different Timbre or switching the unit off, unless it is written into a Timbre memory using the appropriate writing procedure. (See page 114 < Timbre Writing > in "Timbre Editing".)

● Part Setting

The internal memory can store one Part setting, and a memory card can store another one.

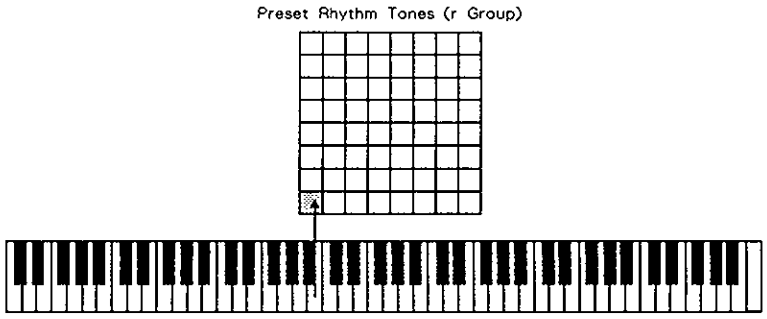


Both Parts 1 and 2 can use Timbres from any group.

● Rhythm Setup

The internal memory can store one Rhythm Setup and a memory card another one.

The Tones which can be assigned to a Rhythm Setup are restricted to Preset Rhythm Tones (r group).



● Patch Chain

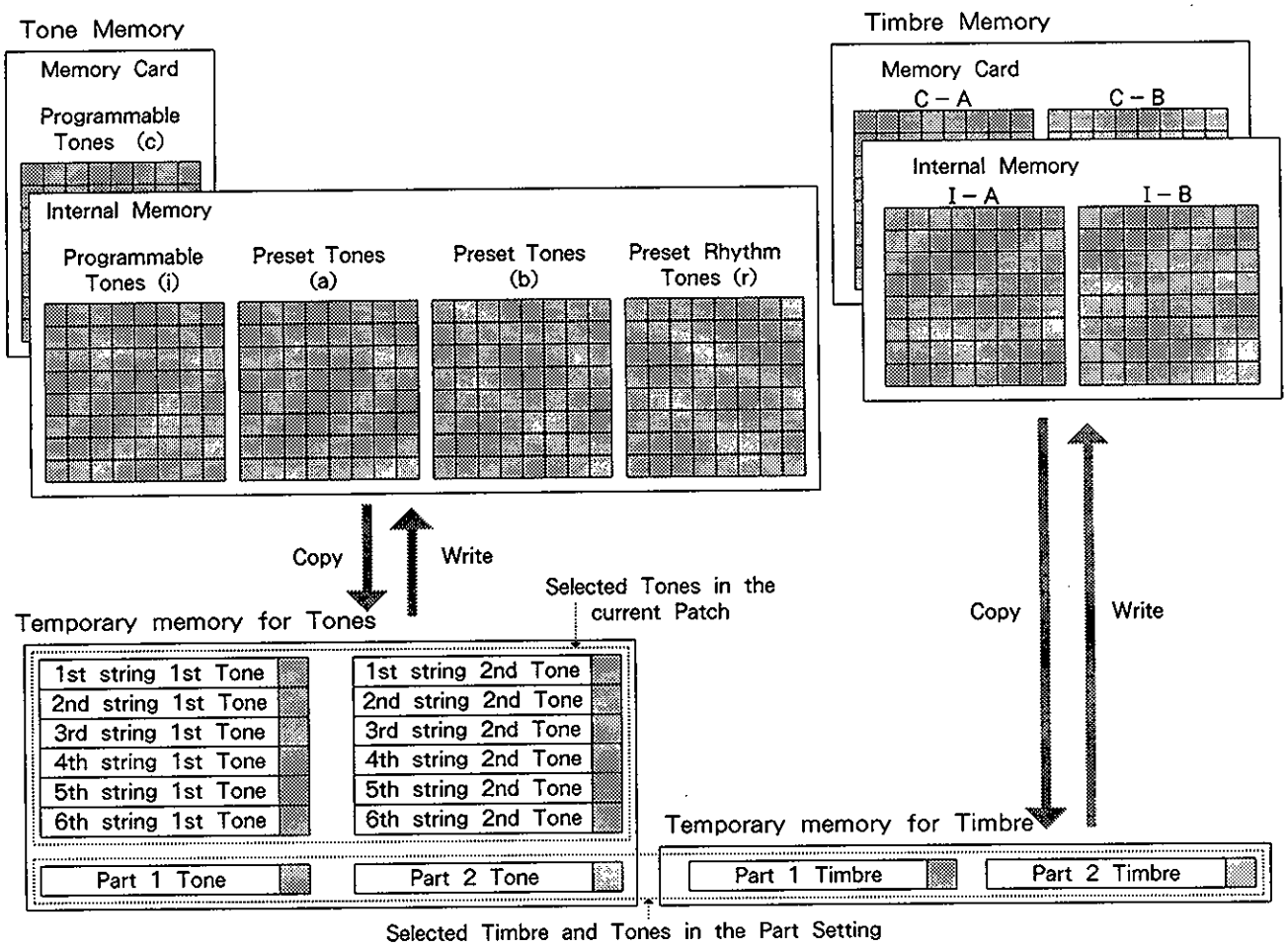
The internal memory can store five Patch Chains, and a memory card another five ones.

● System Setup

The internal memory can retain one System Setup.

Temporary Memory

When you perfprm an editing procedure for a Tone, Timbre, Patch or Patch Chain, the relevant data is copied into a temporary memory first, then the copied data is edited.



Temporary memory for Tones

Temporary memory for Tones is provided for each string and Timbre, and when you change Tones or Timbres, the Tones stored in the temporary memory are copied.

Temporary memory for Timbres

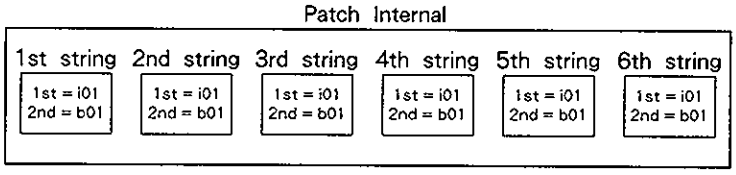
Temporary memory for Timbres are provided for each Part, and when you select a Timbre, the Timbre stored in the temporary memory is copied.

When you take a editing or writing procedure

When you take a writing procedure, data copied in the temporary memory is written into memory, while the data is not yet written into the other temporary memories. This fact causes some complications in Tone or Timbre Editing and Writing as follows :

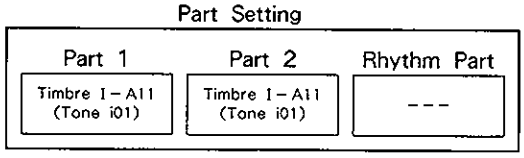
Editing Tones assigned to strings

The same Tones are used for strings 1 to 6 as below, and you edit Tone i01 with Tone Edit in the first string, then write the edited Tone into the same location, i01 using Tone Writing. At this stage, only the first string' s i01 Tone is edited, while i01 Tones of strings 2 to 6 remain intact. Here, if you call i01 again by changing Patches or switching the unit off, 1 to 6 strings will then have edited Tones.



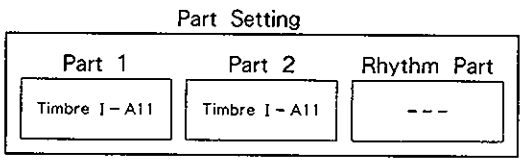
Editing Tones assigned to Parts

Tones are assigned to each Part as shown below and you edit Tone i01 with Tone Edit in Part 1, and write it into the same location i01 with the Tone Writing. At this stage, i01 Tone in Part 1 is edited but that in Part 2 remains intact. Here, if you call i01 again by changing Timbres in Part 2 or switching the unit off once, Part 2 will also become an edited Tone.



Editing Timbres assigned to Parts

Timbre [I-A11] is assigned to Parts 1 and 2 as shown below and you edit Timbre [I-A11] with Timbre Edit in Part 1 then write the edited Timbre in the same location [I-A11] with Timbre Writing. At this stage, the Timbre in Part 1 is edited but that in Part 2 remains intact. Here, if you call [I-A11] again by changing Timbres or switching the unit off once, Part 2 will also become an edited Timbre.



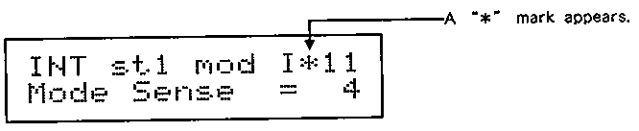
[2] PATCH EDITING

Patch Editing includes editing Patch Common, Patch Internal and Patch External.

● Patch Parameters

		Parameter	Display	Variable Range
Patch Common		Patch Name	Name	(spc) A…Z,a…z,0…9 & ♯ ! ? . , : ; ' " ＊ + − ／ < = >
		Reverb Type	Reverb Type	1…8
		Reverb Time	Reverb Time	1…8
		Reverb Level	Reverb Level	0…7
		Velocity Curve	Velo Curve	1…4
Patch Internal	String	Parameter Group	Parameter	Display	Variable Range
	1~6	Mode Group	Tone Mode	Mode	1st/2nd single, Dual, Velo Switch, Velo X-fade, Velo Mix
			Tone Mode Sensitibity	Mode Sense	1…4
		1st/2nd Tone Group	Tone Select	Tone Number and Tone Name	a01…a64,b01…b64,r01…r64,i01…i64,c01…c64
			Output Level	Output Level	0…100
			Pan	Pan	7 >…> <…< 7
			Key Shift	Key Shift	−24…0…+24
			Fine Tune	Fine Tune	−50…0…+50
			Chromatic Switch	Chromatic SW	ON, OFF
			Reverb Switch	Reverb SW	ON, OFF
Patch External	Branch	String	Parameter Group	Parameter	Display	Variable Range
	A/B		General Group	MIDI Channel	MIDI Channel	1…16, OFF
				MIDI Mode	MIDI Mode	Mono, Poly
				Output Level	Output Level	0…100
				Bender Range	Bender Range	1…64, CHR
		1~6	Individual Group	Program Change No.	Program No.	1…128
				Transpose	Transpose	−24…0…+24
				String Select	Str Select	ON, OFF

＊The edited Patch data will be erased by selecting a different Patch or switching the unit off, unless it is written into a Patch memory using an appropriate writing procedure. (See page 73 < Patch Writing > in "Patch Editing".)
If you do not write an edited Patch, the display will respond as shown below.



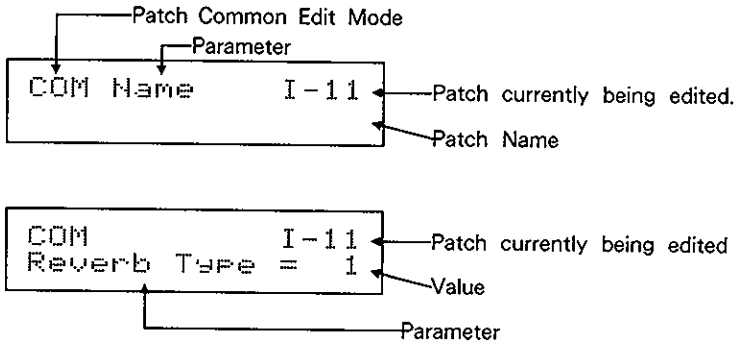
1. Editing Procedure

a. Patch Common Edit Mode

Step 1 In the Play mode, select the Patch to be edited.

Step 2 Press [COM] to enter the Patch Common Edit Mode.

Step 3 Press [PARAM A] to select the parameter to be edited.



Step 4 When you have selected Patch Name in Step 3 :
Press [PARAM B] (a cursor appears), then move the cursor to the position you wish to change.

Step 5 Press [VALUE] to change values.

Step 6 Repeat Steps 3 to 5 as many times as necessary.

Step 7 If you wish to write the edited data, use an appropriate writing procedure (see page 73).

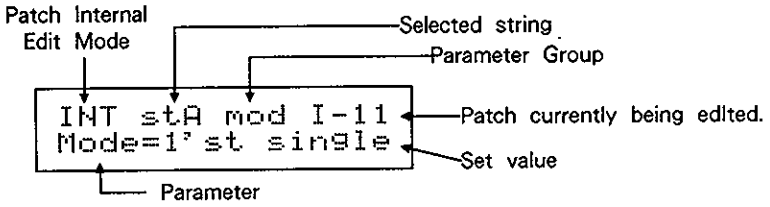
Step 8 Press PLAY or [– PAGE] to return to the Play mode. (The indicator of PLAY lights in green.)

b. Patch Internal Edit Mode

Step 1 In the Play mode, select the Patch to be edited.

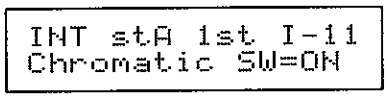
Step 2 Press [INT] to enter the Patch Internal Edit Mode.

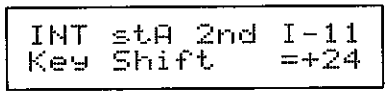
Step 3 Press [STRING] to select the string you wish to set. If you select A (ALL), the currently selected parameter will be set for all six strings.



*The display for "ALL" is the same as the first string. "ALL" will not have effect until the parameter is edited even slightly.

Step 4 Press [PARAM A] to select Mode, 1st Tone or 2nd Tone Parameter Group.





Step 5 Press [PARAM B] to select a parameter from the selected Parameter Group.

Step 6 Press [VALUE] to set the value.

Step 7 Repeat Steps 3 to 6 as many times as necessary.

*To set more than one string to the same setting, you can use the String Copy function. (See page 61 "Patch and String Copy".)

Step 8 To write the edited data, use an appropriate writing procedure (see page 73).

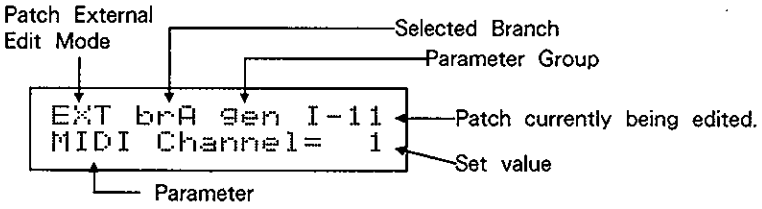
Step 9 Press PLAY or [−PAGE] to return to the Play mode. (The indicator of PLAY lights in green.)

c. Patch External Edit Mode

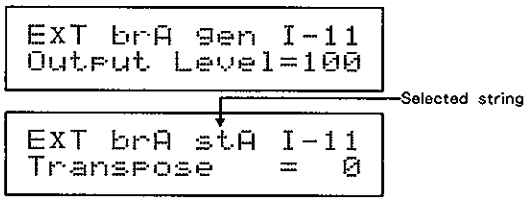
Step 1 **In the Play mode, select the Patch to be edited.**

Step 2 **Press [EXT] to enter the Patch External Edit Mode.**

Step 3 **Press [STRING] to select the Branch you wish to set.**



Step 4 **Press [PARAM A] to select either the General Parameter Group which is irrelevant with string setting or String Number (each string has individual Parameter Group). If you select A (ALL), the currently selected parameter will be set for all six strings.**



*The display for "ALL" is the same as the first string. "ALL" will not have effect until the parameter is edited even slightly.

Step 5 **Press [PARAM B] to select a parameter from the selected Parameter Group.**

Step 6 **Press [VALUE] to set the value.**

Step 7 **Repeat Steps 3 to 6 as many times as necessary.**

*To set more than one string to the same setting, you can use the String Copy function. (See page 61 "Patch and String Copy".)

Step 8 **To write the edited data, use an appropriate writing procedure (see page 73).**

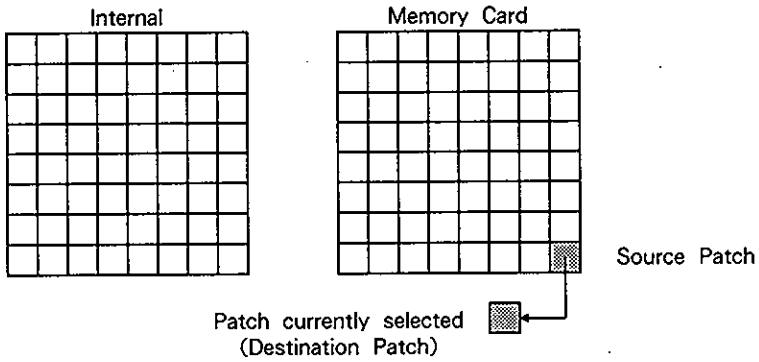
Step 9 **Press PLAY or [– PAGE] to return to the Play mode. (The indicator of PLAY lights in green.)**

2. Patch and String Copy

The GR-50 allows you to copy Patch parameter setting on a patch or string basis.
Using this function, the editing procedure will be much quicker and easier.

Patch Copy

Patch settings can be copied to the currently selected Patch.



Step 1 **In the Patch Common Edit mode of Destination Patch, press [WRITE/COPY] twice to change to the Patch Copy mode.**

```
Copy Patch
From I-11
```

Step 2 **Specify the source Patch to be copied with GROUP BANK and NUMBER.**

*If a memory card is not connected, a Patch on the memory card cannot be used.

Step 3 **Press [ENTER] to execute copying.**

*If you press [-PAGE] instead of [ENTER], the unit is returned to the Patch Common Edit mode without copying the Patch.

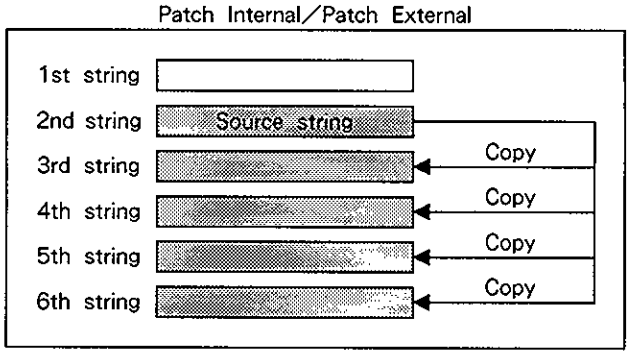
When the copying is completed, the display will respond as shown below, then will return to the Patch Common Edit display.

```
Copy Patch
Complete
```

*To write the edited data, use an appropriate patch writing procedure (see page 73).

String Copy

The String Copy function allows you to copy the string setting shown in the display to lower strings. For instance, if you perform the String Copy when editing the 2nd string, strings 2 to 6 will be given the same settings.



*You cannot copy the 6th string, because it has no lower string.

*If you perform the String Copy when "ALL" is shown in the display, the result is the same as when the 1st string is shown.

*A Patch Internal and Patch External should be copied separately, but the necessary procedure for each data type is exactly the same.

Step 1 **In the Patch Internal Edit mode (or Patch External Edit mode), select the source string to be copied.**

* ALL or 1 to 5 strings can be selected.

Step 2 **Press [WRITE/COPY] twice to get to the String Copy mode.**

```
Copy String
4->56      Sure ?
```

(When the 4th string is the source.)

Step 3 **Press [ENTER] to execute copying.**

*If you press [-PAGE] instead of [ENTER], the unit is returned to the Patch Internal (or Patch External) Edit mode without copying the Patch.

When the copying is completed, the display will respond as shown below, then will return to the Patch Internal (or Patch External) Edit display.

```
Copy String
Complete
```

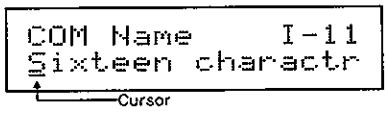
*To write the edited data, use an appropriate patch writing procedure (see page 73).

3. Patch Parameters

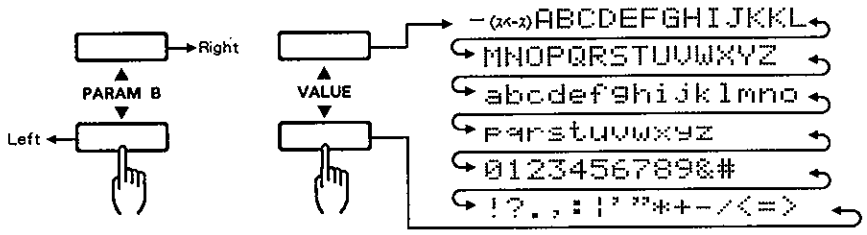
a. Patch Common

● Patch Name

A Patch can be named using up to 16 letters. Call the Patch Name display, and the Patch Name currently selected appears with the cursor under the first letter.

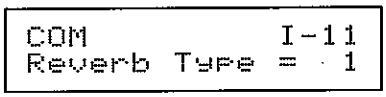


Move the cursor to the desired position with **PARAM B**, then rewrite the value with **VALUE**. The characters available for a Patch Name are shown below.



● Reverb Type

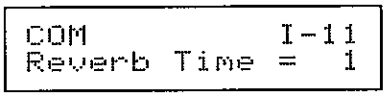
This selects one of the basic Reverb Types shown below.



Number	Reverb Type
1	Small Room
2	Medium Room
3	Medium Hall
4	Large Hall
5	Plate
6	Delay 1
7	Delay 2
8	Delay 3

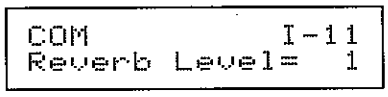
● Reverb Time

This sets the reverberation time. 1 to 8 are valid, higher values making longer reverb times.



● Reverb Level

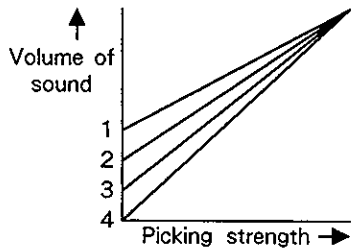
This sets the level of reverb sound. 0 to 7 are valid, higher values increasing the level.



● Velocity Curve

This selects one of the four Velocity Curves (1 to 4) which determines the volume change caused by picking strength.

```
COM              I-11
Velo Curve   =    1
```



*These parameters are effective for both Patch Internal and Patch External.

b. Patch Internal

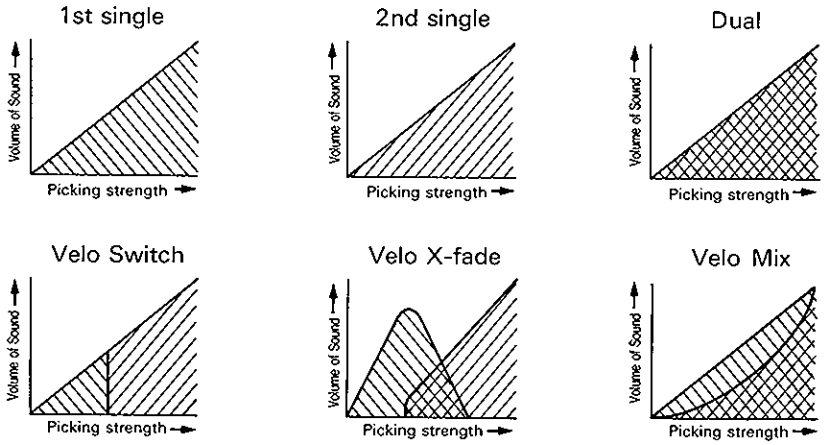
< Mode Group >

● Tone Mode

Two Tones can be assigned to each string. Tone Mode sets how the assigned Tones should be played. The following shows the combinations of two Tones.

```
INT st1 mod I-11
Mode=1'st single
```

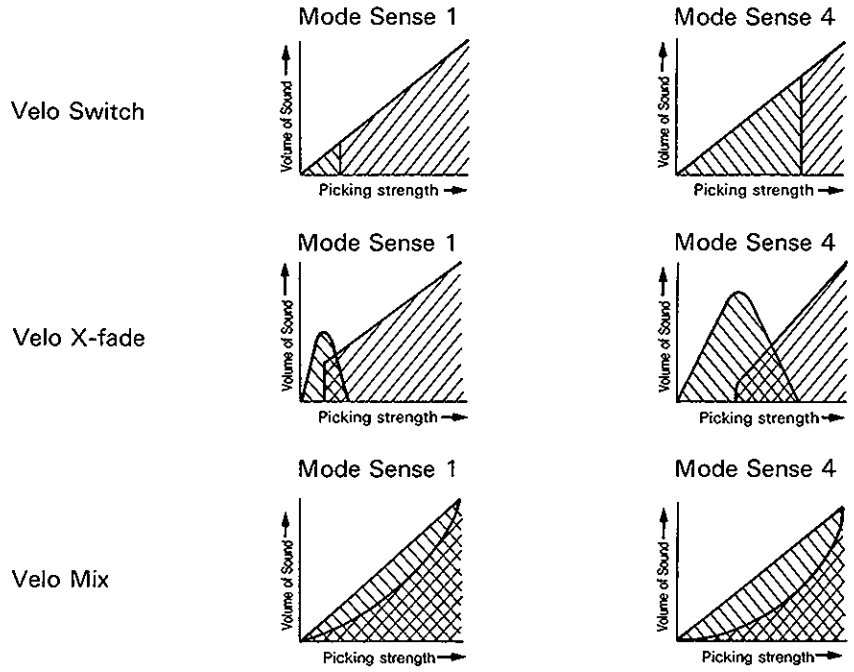
* This table shows the Velocity Curve 4.



●Tone Mode Sensitivity This sets the sensitivity for the effect of the Tone Mode setting.Higher values increase the sensitivity. 1 to 4 are valid.

```
INT st1 mod I-11
Mode Sense  =  3
```

＊This table shows the Velocity Curve 4.

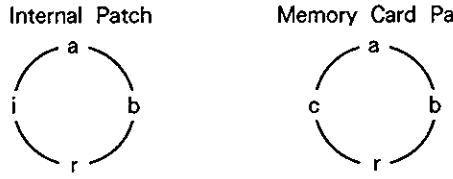


< 1st Tone Group >
< 2nd Tone Group >

●Tone Select This selects the Tones to be assigned to the first and second Tones. The Tones which can be used are Preset Tones (a01 to b64), user-programmed Tones (i01 to i64, c01 to c64) and Preset Rhythm Tones (r01 to r64).

```
INT st1 1st I-11
a11:
```
←Tone Name

＊Tones on a memory card (c group) cannot be used for an Patch Internal. Internal Tones (i group) cannot be assigned to a Patch on a memory card.



● Output Level

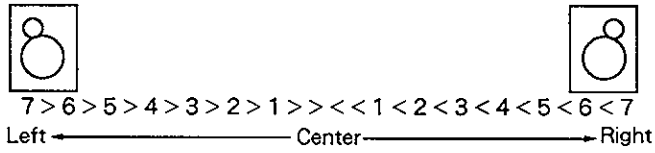
This sets the volume of a Tone, from 0 to 100.

```
INT st1 1st I-11
Output Level= 50
```

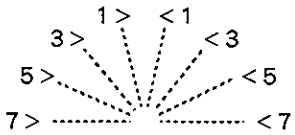
● Pan

This sets the positioning of the sound image for each Tone output in stereo from the Mix Output sockets.
7> to >< to <7 are valid and have an actual effect as shown below.

```
INT st3 2nd I-11
Pan          = 7<
```



*When the Structure for monaural output is used, the actual changes in panning will be as shown below.



*When Structure of the Tone is 8 or 9, the relation between Pan values and the actual sound images for each partial will be as shown below.

Value	Partial 1 (3)	Partial 2 (4)
<7	<7	<7
<6	<5	<7
<5	<3	<7
<4	<1	<7
<3	1>	<7
<2	3>	<7
<1	5>	<7
><	7>	<7
1>	7>	<5
2>	7>	<3
3>	7>	<1
4>	7>	1>
5>	7>	3>
6>	7>	5>
7>	7>	7>

●Key Shift

This can shift the pitch of a Tone higher or lower than the guitar's normal sound, in semitone steps from −2 to + 2 octaves.

```
INT stA 2nd I-11
Key Shift   =+24
```

●Fine Tune

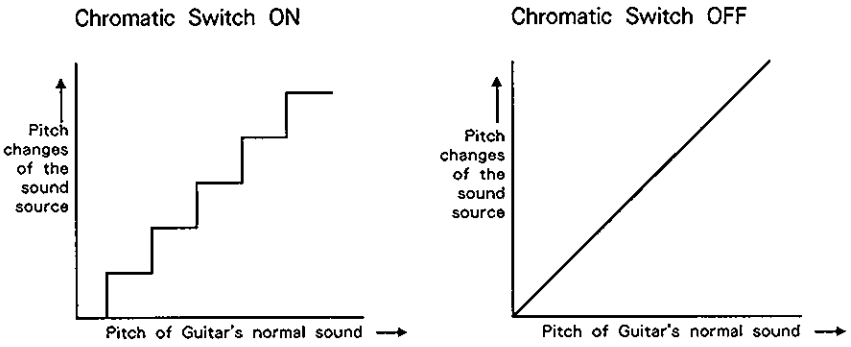
This finely sets the pitch of a Tone from −50 to +50 cents.

```
INT st6 1st I-11
Fine Tune   =  0
```

●Chromatic Switch

This sets the way of the pitch change caused by choking play or the tremolo arm. When it is OFF, the pitch of the sound source changes along with the guitar's pitch change. When ON, pitch changes in semi-tone steps (chromatic). "ON" may be selected to play piano sound.

```
INT stA 1st I-11
Chromatic SW=ON
```


Chromatic Switch ON
Pitch changes of the sound source
Pitch of Guitar's normal sound
Chromatic Switch OFF
Pitch changes of the sound source
Pitch of Guitar's normal sound

*Even when the Patch Internal is set to the Chromatic mode, if the EV-5 where the Bender function is assigned is used or MIDI Bender messages are sent, the pitch of the sound source will change continuously.

● Reverb Switch

This selects whether the Tone should take on the reverb effect set in the Patch Common Edit or not (ON or OFF).

```
INT st2 1st I-11
Reverb SW   =ON
```

c. Patch External

< General Group >

● MIDI Channel

This sets the MIDI channel number on which MIDI messages are sent. OFF and 1 to 16 are valid. When it is set to OFF, the Branch does not transmit any message.

```
EXT brA gen I-11
MIDI Channel=  1
```

If the next MIDI mode is Mono mode, MIDI channel numbers higher than 12 cannot be set for the 1st string. (This is because the following strings will automatically have consecutive numbers.)
If any MIDI channel higher than 12 is set in the Mono mode Branch, or if a Branch which has MIDI channel higher than 12 in Poly mode is set to Mono mode, the following message will appear in the display.

```
Setting Error
```

Press [▼] in [VALUE] until the desired MIDI channel is set, or set the MIDI mode to "POLY" once then set a new MIDI channel.

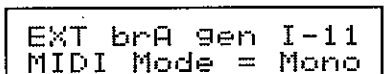
More than one Branch should not be set to the same MIDI channel. When you change channels or change modes from Poly to Mono mode and if the MIDI channel is the same as the one used for the other Branch, the following message will appear in the display.

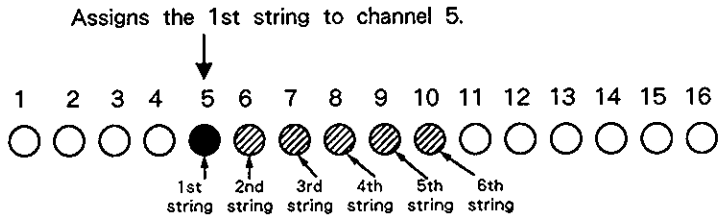
```
Channel Overlap
```

Press [▼] in [VALUE] until the desired MIDI channel is set, or set the MIDI mode to "POLY" once then set a new MIDI channel.

● MIDI Mode

This selects MIDI Poly or MIDI Mono mode. When Mono mode is selected, the set MIDI channel is automatically assigned to the 1st string and the other channels are assigned as shown below.

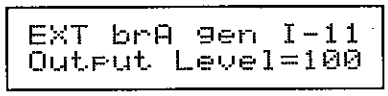



Assigns the 1st string to channel 5.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
1st string
2nd string
3rd string
4th string
5th string
6th string

* Branches are fixed to OMNI OFF.

● Output Level

This determines the output level of the MIDI Volume (the volume of the external sound source) obtained when the volume (the Synth Volume on the GK-2, Cutoff frequency Knob on a G-series guitar, EV-5 where the Volume function is assigned) is set to the maximum. 0 to 100 are valid, higher values increasing the level. Use this to adjust the volume balance with the other Branches or Patches.



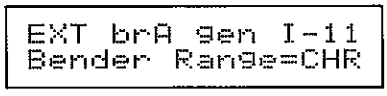
*When the Output Level is set to 0, the external sound source will not be played.

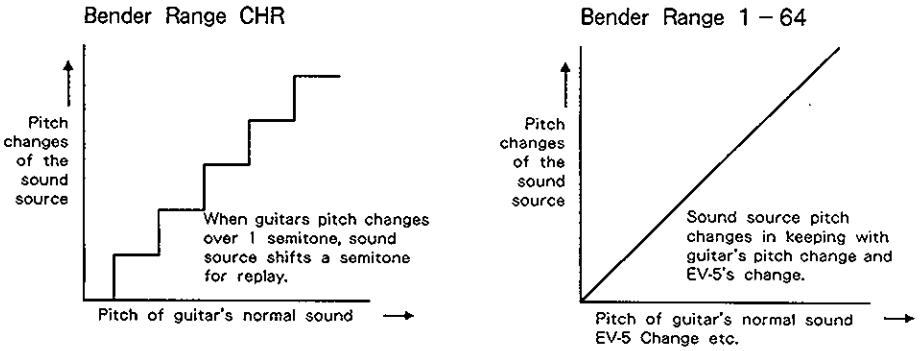
*When the MIDI Volume of the external sound module is set to OFF, or the sound module cannot receive MIDI Volume messages, it will be played regardless of the setting of the Output Level.

● Bender Range

This selects whether the pitch of the sound module should be changed along with guitar's string bend or tremolo arm effect or remain in semitone steps (CHR). To change the pitch of the sound module in the same curve as the guitar's, set the Bender Range to the highest value in the sound module, then set the GR-50's Bender Range to the same value. (See page 72 "Bender Range".)

*When it is set to other than CHR (chromatic), that is 1 to 64, playing a string will send large amounts of bender messages, and therefore fill up memory quickly when recording data into a sequencer, etc.




Bender Range CHR
Pitch changes of the sound source
When guitars pitch changes over 1 semitone, sound source shifts a semitone for replay.
Pitch of guitar's normal sound
Bender Range 1 – 64
Pitch changes of the sound source
Sound source pitch changes in keeping with guitar's pitch change and EV-5's change.
Pitch of guitar's normal sound
EV-5 Change etc.

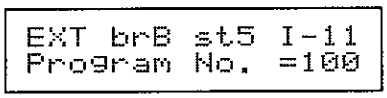
*Even when the Bender Range is set to the Chromatic mode, if the EV-5 where the Bender function is assigned is used or MIDI Bender messages are sent, the pitch of the sound module will change continuously.

*When MIDI Poly mode is selected and the Bender Range is set to from 1 to 64, the bend effect is applied to the sound module if the guitar is played in single note, but playing more than one string at the same time will automatically turn the Chromatic mode on.

< Individual Group >

●Program Change Number

This selects which voice on the sound module is to be played. When a Patch on the GR-50 is selected, the Program Change number (1 to 128) is sent to the external sound module, selecting the corresponding sound in the module. If the MIDI mode of a Branch is set to Poly mode, set one Program Change for the Branch (one MIDI channel for the Branch). In Mono mode, a MIDI channel is set for each string, therefore, you should set a Program Change for each string (each MIDI channel). In this way, Mono mode allows a different voice for each string.

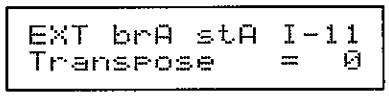


*In the Mono mode, if you select "ALL" for editing, the same Program Change number will be automatically assigned to all the strings.

*In the Poly mode, the Program Change number set for the 1st string will be used for the Branch.

●Transpose

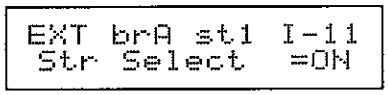
This can set the pitch of the external MIDI sound module higher or lower than the guitar's normal sound, from −24 to +24 (−2 to +2 octaves) in semitone steps.



●String Select

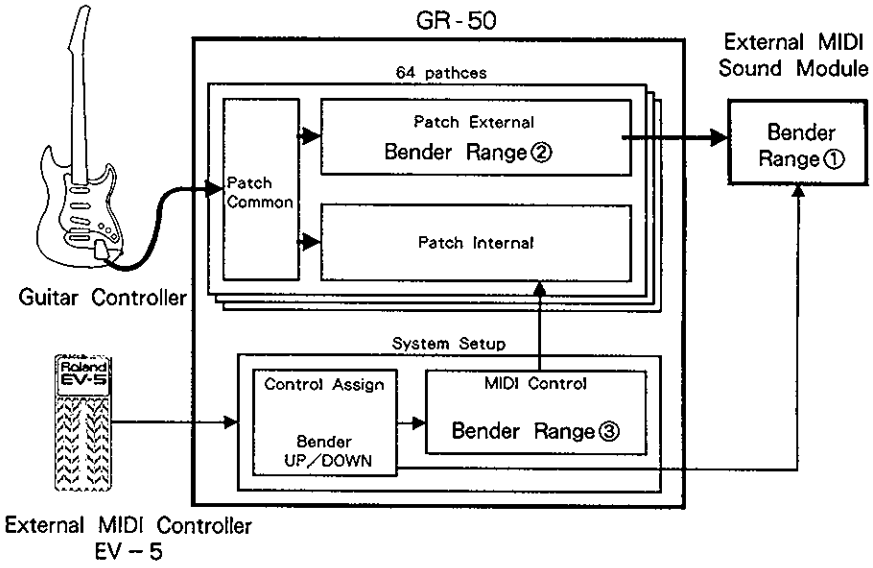
This selects whether each string should transmit messages. An OFF setting mutes the string.

*Even when the String Select is set to OFF, the Program Change number is transmitted.



Bender Range

It is important to set all the Bender Range parameters in the GR-50 correctly.



● **Set Bender Ranges ② and ③ to the same value as ①.**

● **Even if the guitar is set to the Chromatic mode, the pitch changes continuously with the MIDI bender messages of the EV-5 where the bender function is assigned.**

● **The GR-50 transmits the bender range value from the MIDI channel of each Branch when it is switched on, when Patches are changed and when the Bender Range of a branch is edited, using the RPC (Registered Parameter Control) that is one of the MIDI Control Change messages. So, the bender range value of the GR-50's Branch Automatically becomes the same as that of the external MIDI sound nodule. This, however dose not apply to any external MIDI sound module that dose not receive RPC Message.**

* For detailed explanation about RPC, see the MIDI Implementation.

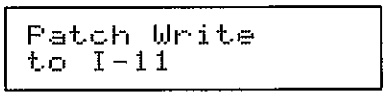
4. Patch Writing

The Patch parameters you have set will be erased when you select a different Patch or switch the unit off. To retain Patch data, take an appropriate writing procedure; into the internal memory or onto a memory card.
To write data onto a memory card, set the protect switch on the card to the OFF position first. Then, when writing is completed, be sure to return it to ON.

Patch Writing can write Patch Common, Patch Internal and Patch External parameters. (Refer to P.57)

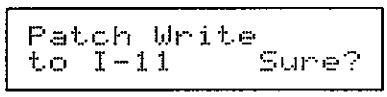
*When Patch data is written from the internal memory onto a memory card, any Tone of i group (Internal user-programmed Tones) will be switched to a Tone of c group (user-programmed Tones on a memory card), therefore, the created sound will be different. To avoid this, Write the Tones of i group (Internal user-programmed Tones) onto the Tones of c group (user-programmed Tones on a memory card).This applies to writing from a memory card to the internal memory.

Step 1 **Edit a Patch in a Patch Editing mode (Patch Common Edit, Patch Internal Edit, or Patch External Edit mode), then press [WRITE/COPY] to enter the Patch Write mode.**



Step 2 **The display shows the Patch number of the edited Patch. To write it into the same location, go to the next step. To write it into a different Patch number (destination), specify the number using GROUP BANK and NUMBER.**

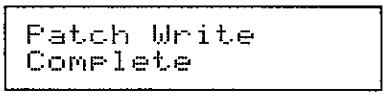
Step 3 **Press [ENTER].**



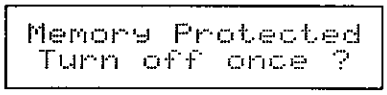
Step 4 **Press [WRITE/COPY].**

*To stop the writing procedure, press [– PAGE]. The display will return to the condition before any writing procedure was taken.

When data is written, the display responds as shown below, then returns to the condition before the writing procedure was taken.

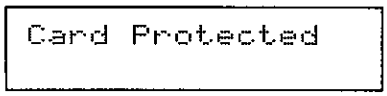


If you try to write data into the internal memory with the Memory Protect of the System Group in the system setup to ON, the display responds as shown below.



Pressing [ENTER] disables the protect function, writing data into memory. Pressing [−PAGE] will exit the writing mode and returns the display to the condition prior to writing.

If you try to write data onto a memory card with the Memory Protect switch set to on, the following display will be shown .



Set the Protect switch on the memory card to OFF, then repeat the procedure.
Return the Protect Switch on the memory card to ON when you finish writing.

*Always return the Protect Switch on the memory card to ON when you finish writing.

*When the data is not written correctly, an error message will appear. If so, resolve it as instructed in "Error Messages" on page 146.

[3] PATCH CHAIN

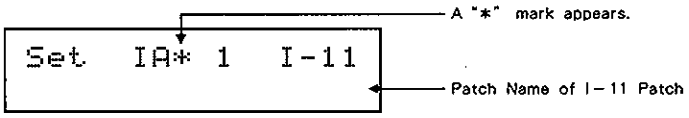
1. Patch Chain Setting

The Patch Chain function allows you to link up to 25 Patches, then play them in sequence later in live performance. Up to five Patch Chains can be stored in the internal memory, and another five on a memory card.

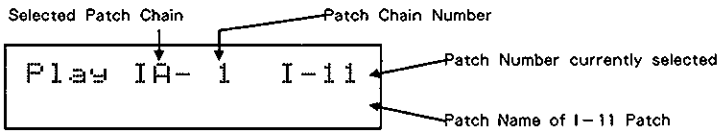
Select the Patch Chain you wish to set (edit), turn the unit to the Patch Chain Setting mode, then assign Patches you like to the Patch Chain, using the Overwrite, Insert, Delete and End functions.

*The Patch Chain you have set will be erased by selecting a different Patch Chain or switching the unit off. To retain the data, take an appropriate Patch Write procedure. (See page 79 "Patch Chain Writing".)

*If you do not write the edited Patch Chain, the display will respond with :

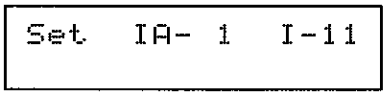


Step 1 **In the Play mode (The indicator of PLAY lights in green), select the Patch Chain you wish to set using [+PAGE] and [-PAGE].**

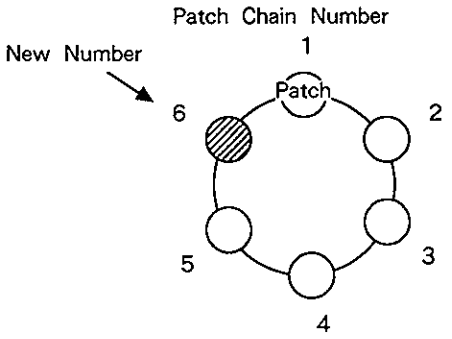


*When a memory card is not connected, Patch Chains on the memory card cannot be used.

Step 2 **Press [PATCH CHAIN] to change to Patch Chain Setting mode. (The indicator of [PATCH CHAIN] lights in red.)**



The new Patch Chain number will be added to the last Patch Chain number already selected in the Play mode. Patches in this new Patch Chain can be switched with different Patches using the Overwrite function.



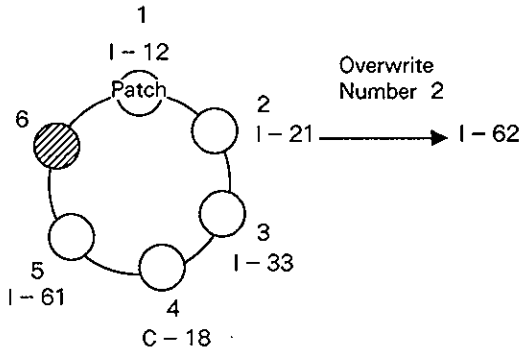
Step 3 **Using [ENTER], specify the Patch Chain number whose Patches you wish to switch. (Pressing [ENTER] increases Patch Chain numbers.)**

*If the Patch Chain Down and Up functions are assigned to the guitar's switches S1 and S2 (see page 30), those switches can also be used for changing Patch Chain numbers. Pressing S1 and S2 at the same time will select Patch Chain number 1.

Step 4 **Using the Overwrite, Insert, Delete and End functions, change the setting of the Patch Chain.**

●Overwrite Function

This function can be used to switch the Patches in the Patch Chain currently selected with different Patches. Selecting a new Patch will automatically rewrite it, so you do not need to write it.

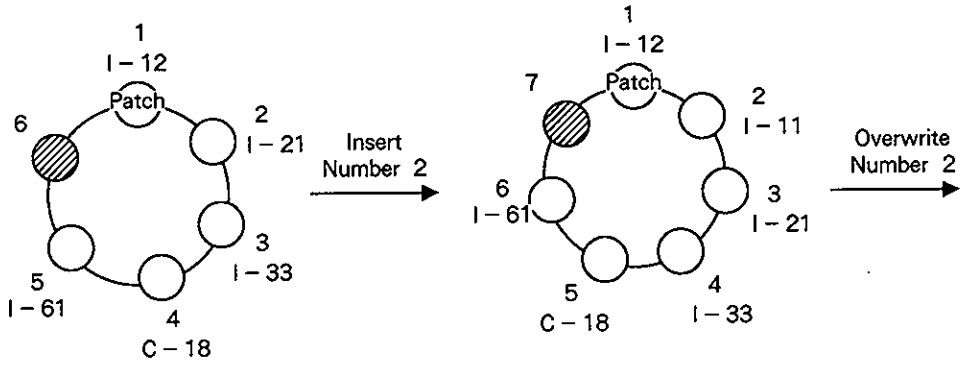


Step 4 – 1 **Press GROUP to select I (Internal) or C (Memory Card). Then specify the Patch Bank with BANK, and Patch number with [NUMBER].**

*When a memory card is not connected, C (Patches on a memory card) cannot be used.

● Insert Function

This function is useful for inserting a Patch between two Patches. I – II Patch number will appear where you can rewrite it with a Patch you wish to insert.



Step 4 – 1 **Press [+ PAGE] while holding [PATCH CHAIN] down, and Patch Chain number I – 11 will appear.**

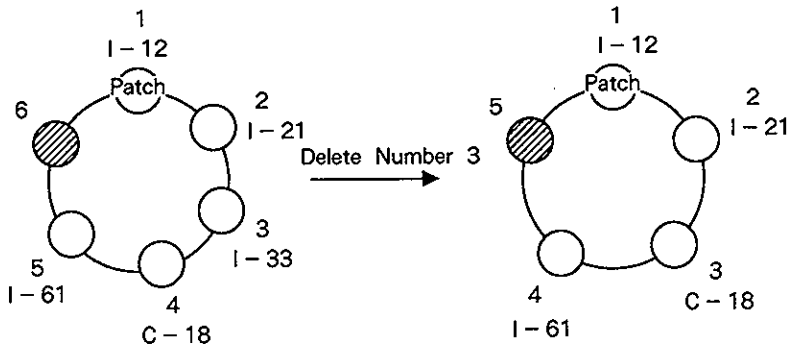
Step 4 – 2 **Specify a Patch number you wish to insert with [GROUP] [BANK] and [NUMBER].**

*When 25 Patches have already been set in the Patch Chain, no more Patchs can be inserted. An error message will appear as shown below.

```
Chain memory
Full
```

● Delete Function

This function is used for deleting Patches in the current Patch Chain.

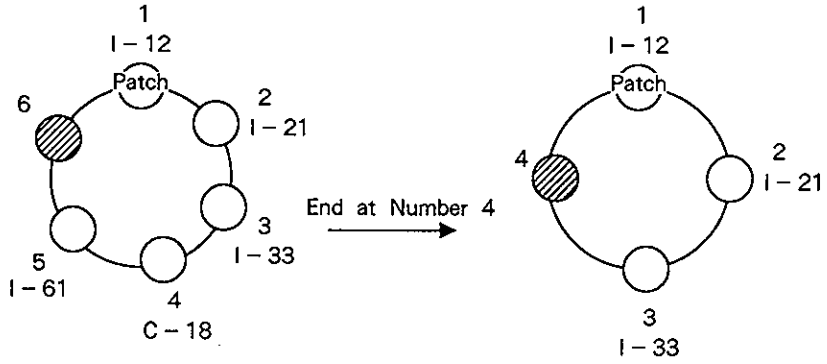


Procedure **Press [– PAGE] while holding [PATCH CHAIN] down.**

*You cannot delete the last Patch in a Patch Chain.

● End Function

This function sets the last Patch in the Patch Chain. The Patch number just before the selected Patch will be the last Patch.



Procedure

Press GROUP to select "– – – –" (end).

Step 5 **To save settings in memory, perform Patch Chain Write (See next page 79).**

Step 6 **Press PLAY to return to Play Mode.**

2. Patch Chain Writing

To write the edited Patch Chain data, use the following Patch Chain writing procedure.

Step 1 **When you have finished setting a Patch Chain, press [WRITE/COPY] to change to the Patch Chain Writing mode.**

The display responds as shown below. (The indicator of [PATCH CHAIN] is lit in red.)

```
Chain Write
to IA
```

Step 2 **Select the destination Patch Chain where the edited Patch Chain is to be written. First, select I or C (Internal or Memory Card) with [PARAM B], then select A, B, C, D or E using [VALUE].**

*When a memory card is not connected, C (Patch Chain on a memory card) cannot be selected.

Step 3 **Press [ENTER],**

```
Chain Write
to IA       Sure?
```

Step 4 **Press [WRITE/COPY].**

To stop the writing procedure, press [-PAGE]. The display will return to the condition before any writing procedure was taken.

When data is written, the display responds as shown below, then returns to the condition before the writing procedure was taken.

```
Chain Write
Complete
```

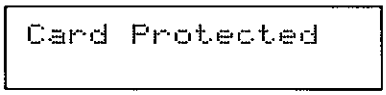
If you try to write data into the internal memory with the Memory Protect set to ON, the display responds as shown below.

```
Memory Protected
Turn off once ?
```

Pressing [ENTER] disables the protect function, writing data into memory.

Pressing [-PAGE] will exit the writing mode and returns the display to the condition prior to writing.

If you try to write data onto a memory card with the Memory Protect switch set to on, the following display will be shown.



Set the Protect switch on the memory card to OFF, then repeat the procedure.
Return the Protect Switch on the memory card to ON when you finish writing.

When data is not written correctly, an error message will appear. If so, resolve it as instructed in "Error Messages" on page 146.

Step 6 **Press PLAY or [– PAGE] to return to the Play mode. (The indicator of the PLAY changes to green.)**

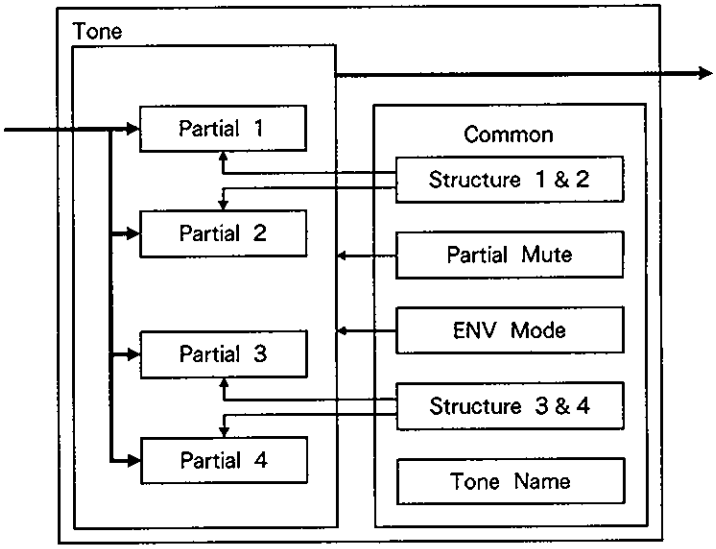
④TONE EDITING (SOUND SOURCE SETTING)

1. Basic Concept of a Tone

The general concepts of synthesizers and sound synthesis are explained in "LA Synthesis" on page 138. Please read it together with this section.

a. Partial and Structure

A Tone consists of four Partial blocks and a Common block.



The Partials are combined in pairs, and two sets of pairs form a Tone. An important Common parameter called "Structure" decides how two of the four Partials should be combined or which sound generator is used, a synthesizer voice or PCM voice.

b. Functions of the Structure

1) How to use each Partial

The Structure selects which of the two sound generators, a synthesizer sound generator or a PCM sound generator will be used for each Partial.

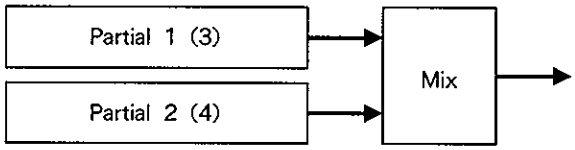
●Synthesizer Sound Generator This synthesizer behaves like a conventional analog synthesizer.

● PCM Sound Generator This behaves like a PCM sampled synthesizer.

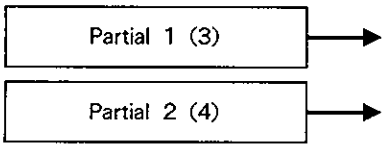
2) How to combine two Partials

There are four different ways to combine Partials.

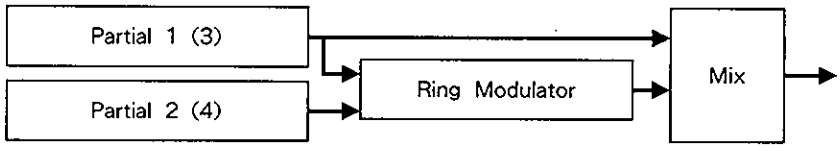
● Mixing two Partials



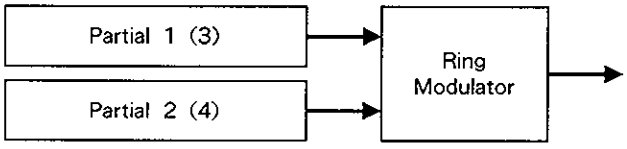
●Sending two Partial sounds in stereo. The sound imaging of each Partial changes with the Pan settings (e.g., Patch Internal : P.66). However, if sending sounds via the monaural output, this will have exactly the same effect as above "Mixing two Partials".



●Partial 1 (or 3) is mixed with the ring-modulated sound of two Partials (including Partial 1 or 3).



● Two Partials are ring-modulated and sent out.

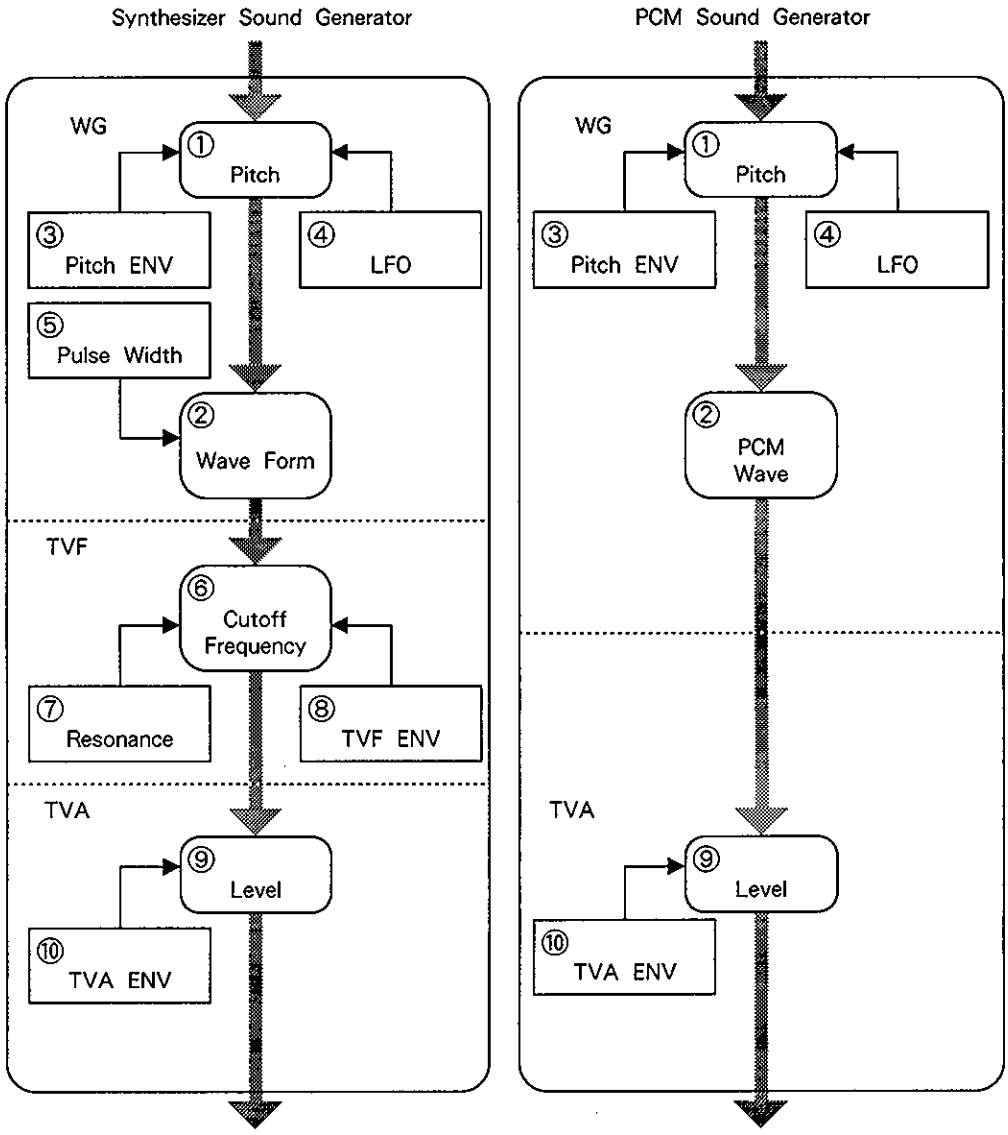


c. Ring Modulator

The Ring Modulator can be effectively used for creating metallic sounds, since it can increase harmonics by multiplying two Partials.

d. Partials

Depending on which generators are selected in the Partial block, greatly different parameters will be used. Some parameters used for the synthesizer sound generators are irrelevant to the PCM generator. See the diagram below.



e. Editing with the PG-10

The GR-50's Tones and Timbres can be edited using the Programmer PG-10. However, the other parameters (e.g. Patch, Part setting) cannot be edited with the PG-10. (See page 81 "Tone Editing" and page 110 "Timbre Editing".)

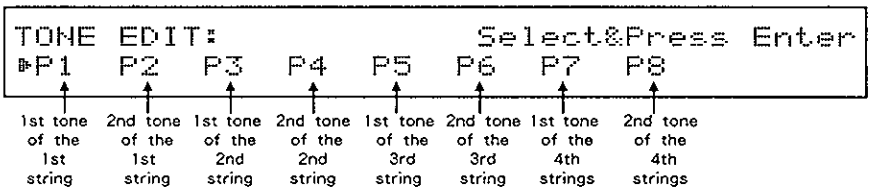
*To use the PG-10, switch the PG-10 on while holding **PARTIAL SELECT 1** down. (The necessary procedure is the same as the D-110, read the owner's manual of the PG-10.)

●Timbre Editing

Timbres selected for Parts 1 and 2 on the GR-50 can be edited in Part 1 and 2 on the PG-10's Timbre Edit.

●Tone Editing

The 1st and 2nd Tones, assigned to strings 1 to 4, for the currently selected patch, can be edited with the PG-10.


TONE EDIT: Select&Press Enter
*P1 P2 P3 P4 P5 P6 P7 P8
1st tone of the 1st string
2nd tone of the 1st string
1st tone of the 2nd string
2nd tone of the 2nd string
1st tone of the 3rd string
2nd tone of the 3rd string
1st tone of the 4th strings
2nd tone of the 4th strings

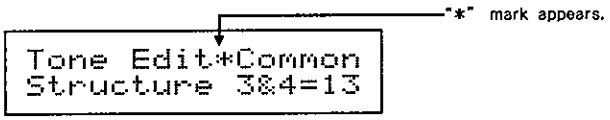
Make sure there is a match between the PG-10's exclusive unit number (See PG-10 Owener's Manual), and the GR-50 Unit Number. (See system Setup, "system group", Exclusive Unit Number.)

*Tones in a, b and r groups are Preset Tones, and therefore cannot be rewritten. These can be edited and written into different locations (Tones in i or c group).

*Tones in i and c are user-programmable, and therefore can be edited and rewritten.

*The edited data is erased by selecting a different Patch, Timbre or Tone, or switching the unit off. To retain it, use the Tone Writing procedure (see page 105).

If you do not write the edited Tone into memory, the display will respond with :



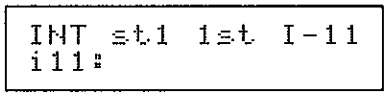
2. Editing Procedure

Select the Tone you wish to edit, then edit the Tone Parameters.

Selecting a Tone to be edited

●From the Tone Select Display of the 1st/2nd Tone in the Patch Internal Edit mode :

Step 1 **Call a Tone to be edited in the Tone Select Display of the 1st or 2nd Tone in the Patch Internal Edit mode.**

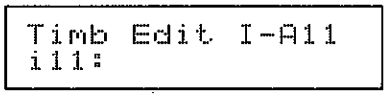


*When ALL is assigned to the strings, you cannot enter the Tone Edit mode. Set the string from 1 to 6.

Step 2 **Select a Tone to be edited with [VALUE].**

●From the Tone Select Display in the Timbre Edit mode :

Step 1 **Call a Tone to be edited in the Tone Select Display in the Timbre Edit mode.**

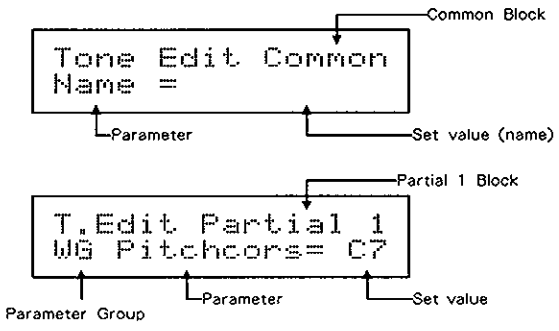


Step 2 **Select the Tone with [PARAM B] and [VALUE].**

Editing a Tone

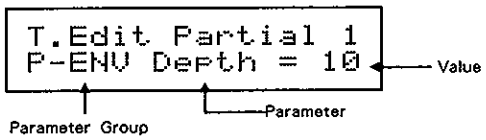
Step 1 **Turn to the Tone Edit mode using [+PAGE].**

Step 2 **Press [PART] to select Common or Partial 1, 2, 3 or 4.**

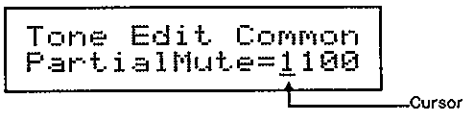


Step 3 **If you have selected Common in Step 2, select a Common parameter with [PARAM A].**

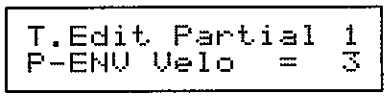
If you have selected a Partial in Step 2, select a Partial parameter group with [PARAM A].



Step 4 **When Tone Name or Partial Mute in the Common is selected, pressing [PARAM B] will display a cursor.**
Shift the cursor by pressing [PARAM B].



When a Partial Parameter Group is selected, call a Partial parameter with [PARAM B].



Step 5 **Press [VALUE] to change the value of the parameter.**

Step 6 **Repeat Steps 2 to 5 as many times as necessary.**

Step 7 **Write the edited data (see page 105).**

Step 8 **Press [PLAY] to return to the Play mode. (The indicator of [PLAY] lights in green.)**

*When you change from Tone Select in the Patch Internal mode to the Tone Edit mode, pressing [−PAGE] once will return to the Patch Internal Edit mode, and pressing it twice will return to the Play mode.

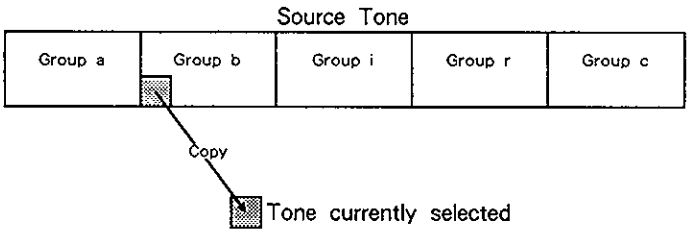
*When you change from Tone Select in the Timbre Edit mode to the Tone Edit mode, pressing [−PAGE] once will return to the Timbre Edit mode, and pressing it twice will return to the Part Setting mode.

3. Tone and Partial Copying

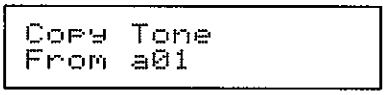
The GR-50 allows you to copy a Tone or Partial. As a Tone consists of many parameters, this copying function will make the editing procedure quicker and easier.

Tone Copy

The Tone Copy function copies a Tone to the one currently selected.



Step 1 **In the Common Edit display of the destination Tone, press [WRITE/COPY] twice to enter the Tone Copy mode.**



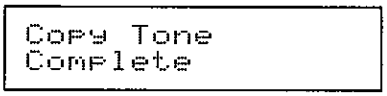
Step 2 **The display shows Tone "a01". Select the source Tone with [PARAM B] and [VALUE].**

*When a memory card is not connected, Tones on the memory card cannot be used.

Step 3 **Press [ENTER] to execute copying.**

*Pressing [-PAGE] instead of [ENTER] will return to the Common Edit Display of the Tone without the Tone being copied.

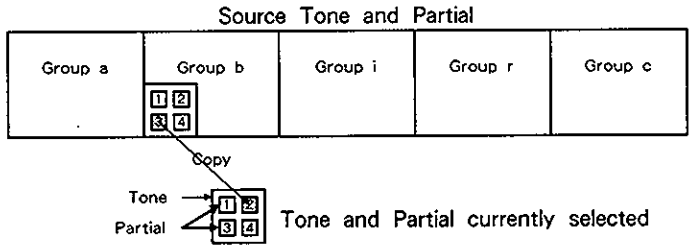
When the copying is completed, the display responds as shown below, then returns to the Common Edit mode of Tone.



*To write the edited data, use the Tone Writing procedure (see page 105).

Partial Copy

The Partial Copy function copies a Partial to one of the four Partials.



Step 1 **In the Partial Edit display of the destination Partial, press [WRITE/COPY] twice to enter the Partial Copy mode.**

Step 2 **The display shows Tone "a01" and Partial "1".**

Select the source Tone with [PARAM B] and [VALUE], then select a Partial of the Tone with [PART].

```
Copy Partial
From a32 Ptl:1
```

*When a memory card is not connected, Tones on the memory card cannot be used.

Step 3 **Press [ENTER] to execute copying.**

*Pressing [– PAGE] instead of [ENTER] will return to the Partial Edit Display of the Tone without the Partial being copied.

When the copying is completed, the display responds as shown below, then returns to the Partial Edit mode of Tone.

```
Copy Partial
Complete
```

*To write the edited data, use the Tone Writing procedure (see page 105).

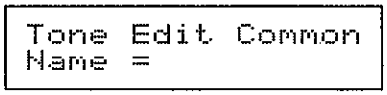
4. Tone Parameters

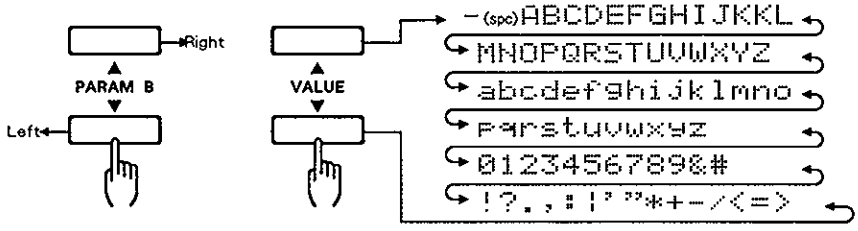
Some parameters included in a Partial that use the PCM sound generator are invalid. The PCM mark is shown when the parameters apply even for PCM sounds.

a. Common

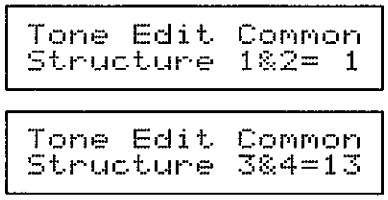
●Tone Name PCM

A Tone can be named using up to 10 characters. Move the cursor with [PARAM B], then change characters with [VALUE].
The characters available for naming are as shown below.





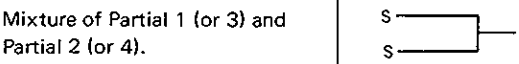
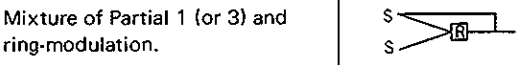
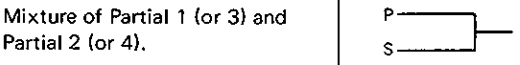
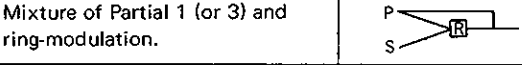
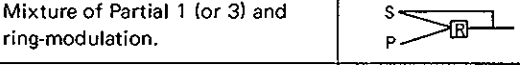
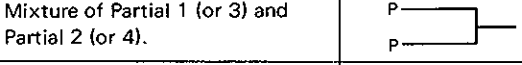
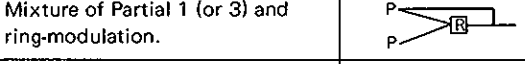
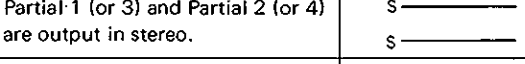
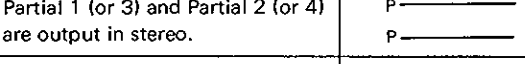
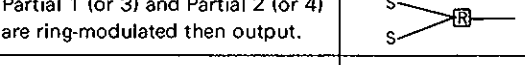
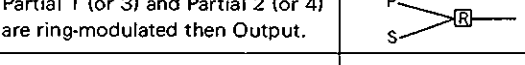
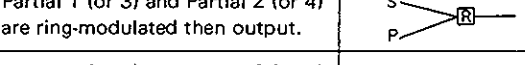
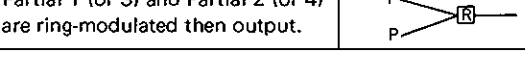
●Structure 1 & 2/ 3 & 4 PCM



Select one of the following 13 structure patterns to be used for Structure 1, 2 or 3, 4.

*Structure 8 or 9 will output the sound of each Partial separately depending on the Pan setting (this applies only to stereo output through the Mix Output Sockets.)

S = Synthesizer Sound Generator P = PCM Sound Generator Ⓡ= Ring Modulator

Structure Number	Partial 1 (3)	Partial 2 (4)	Partial Combination	Block Diagram
1	S	S	Mixture of Partial 1 (or 3) and Partial 2 (or 4).	
2	S	S	Mixture of Partial 1 (or 3) and ring-modulation.	
3	P	S	Mixture of Partial 1 (or 3) and Partial 2 (or 4).	
4	P	S	Mixture of Partial 1 (or 3) and ring-modulation.	
5	S	P	Mixture of Partial 1 (or 3) and ring-modulation.	
6	P	P	Mixture of Partial 1 (or 3) and Partial 2 (or 4).	
7	P	P	Mixture of Partial 1 (or 3) and ring-modulation.	
8	S	S	Partial 1 (or 3) and Partial 2 (or 4) are output in stereo.	
9	P	P	Partial 1 (or 3) and Partial 2 (or 4) are output in stereo.	
10	S	S	Partial 1 (or 3) and Partial 2 (or 4) are ring-modulated then output.	
11	P	S	Partial 1 (or 3) and Partial 2 (or 4) are ring-modulated then Output.	
12	S	P	Partial 1 (or 3) and Partial 2 (or 4) are ring-modulated then output.	
13	P	P	Partial 1 (or 3) and Partial 2 (or 4) are ring-modulated then output.	

●Partial Mute PCM

While editing a Partial parameter, any Partial sound can be muted, for you to listen to only the Partial you want. The Partial Mute, which is also one of the Tone parameters, can be written into memory.
Move the cursor with **PARAM B** to select the Partial to be muted, then mute it with **VALUE**. "1" means that partial will sound and "0" is mute.

```
Tone Edit Common
PartialMute=1100
```

*Parameters of the Partial currently muted can be edited just the same.

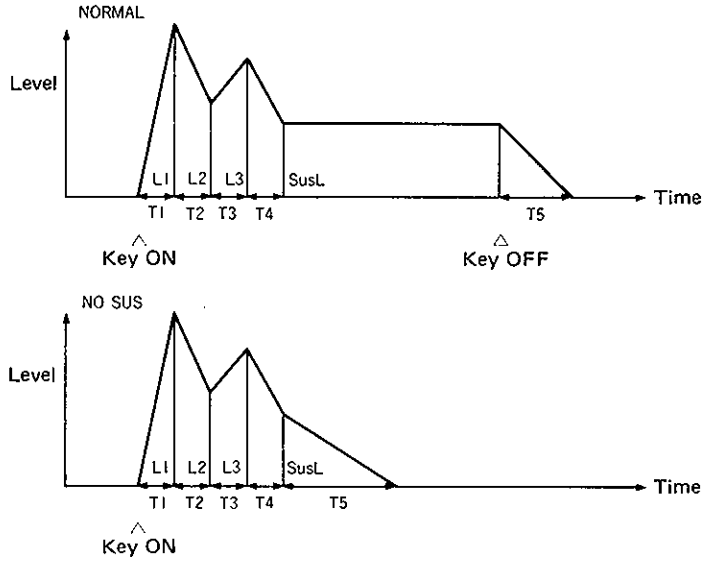
*Partial Mute decreases the number of Partials which are to be used, and therefore increases the number of voices.

*When the Ring Modulator is used, muting one of the Partials will output the other partial intact (without being processed by the Ring Modulator).

●ENV Mode PCM

This selects whether to receive or ignore the Note Off messages in the ENV of each Partial. Normally, this should be set to NORMAL, but set to NO SUS (No sustain) for programming a Rhythm Tone, etc.

```
Tone Edit Common
ENV Mode= NORMAL
```



b. Partial

< WG Group >

●Pitch Coarse PCM

This sets the standard pitch of a Partial in semitone steps from C1 to C9.

```
T.Edit Partial 1
WG Pitchcors= C7
```

*The standard pitch is the pitch played by receiving C4 (middle C) note messages.

●Pitch Fine PCM

The standard pitch can be altered from −50 to +50 (cents).

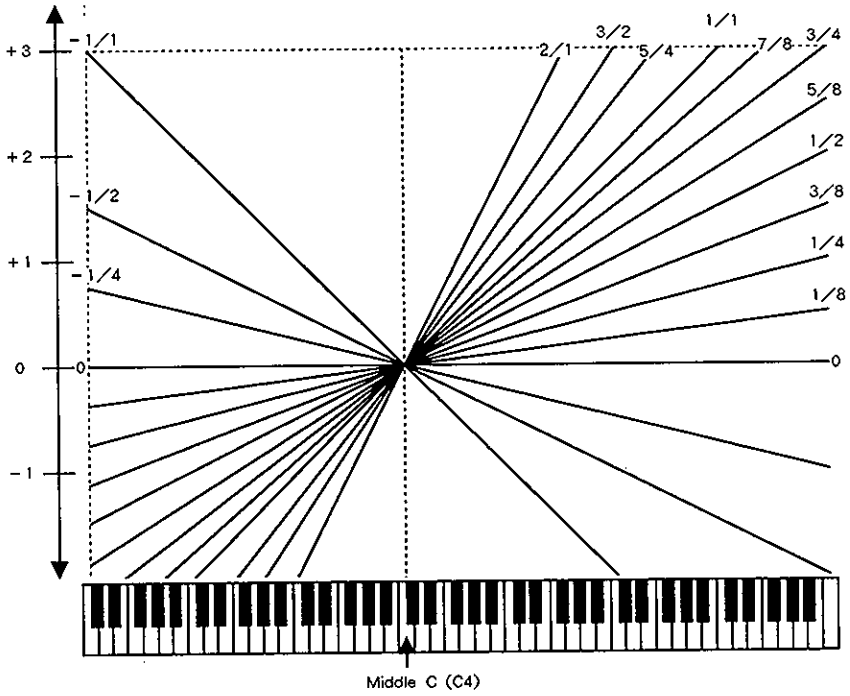
```
T.Edit Partial 1
WG PitchFine=  0
```

●Key Follow (Pitch) PCM

This parameter can change the pitch ratio in semitone steps, corresponding to the chromatic scale used in conventional electronic musical instruments (e.g. synthesizer).

```
T.Edit Partial 1
WG Pitch KF= 1/8
```

A value represents how many octaves are changed over 12 keys (frets).



* s1 or s2 may be selected for slightly stretching the pitches.
  s1 : The Pitch is set 1 cent higher than one octave.
  s2 : The Pitch is set 5 cents higher than one octave.

● Bender Switch PCM

This selects whether to control the pitch with the bender messages (ON) or not.

```
T.Edit Partial 1
WG Bender SW=OFF
```

*When the Bender Switch is set to OFF, the sound will not be affected by the bender messages received.

● Waveform

This selects a waveform of the synthesizer sound generator.

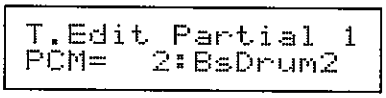
```
T.Edit Partial 1
WG Waveform =SQU
```

Display	Wave
SQU	
SAW	

*A sawtooth waveform is produced by processing a square waveform at the TVF, consequently, even a sawtooth waveform can be controlled with the Pulse Width.

●PCM Wave Bank/ Number PCM

This selects one of the 256 different sampled waves (128 in each Bank 1 or 2) of the PCM sound generator. Each sample is named (PCM name) as shown in the following table.



[Bank 1]

No.	PCM Name	Remarks
001	Bass Drum-1	Rhythm Sound
002	Bass Drum-2	
003	Bass Drum-3	
004	Snare Drum-1	
005	Snare Drum-2	
006	Snare Drum-3	
007	Snare Drum-4	
008	Tom Tom-1	
009	Tom Tom-2	
010	High-Hat	
011	High-Hat (Loop)	
012	Crash Cymbal-1	
013	Crash Cymbal-2 (Loop)	
014	Ride Cymbal-1	
015	Ride Cymbal-2 (Loop)	
016	Cup	
017	China Cymbal-1	
018	China Cymbal-2 (Loop)	
019	Rim Shot	
020	Hand Clap	
021	Mute High Conga	
022	Conga	
023	Bongo	
024	Cowbell	
025	Tambourine	
026	Agogo	
027	Claves	
028	Timbale High	
029	Timbale Low	
030	Cabasa	
031	Timpani Attack	Attack Sound
032	Timpani	
033	Acoustic Piano High	
034	Acoustic Piano Low	
035	Piano Forte Thump	
036	Organ Percussion	
037	Trumpet	
038	Lips	
039	Trombone	
040	Clarinet	
041	Flute High	
042	Flute Low	
043	Steamer	
044	Indian Flute	
045	Breath	
046	Vibraphone High	
047	Vibraphone Low	
048	Marimba	
049	Xylophone High	
050	Xylophone Low	
051	Kalimba	
052	Wind Bell	
053	Chime Bar	
054	Hammer	
055	Guiro	
056	Chink	
057	Nails	
058	Fretless Bass	
059	Pull Bass	
060	Slap Bass	
061	Thump Bass	
062	Acoustic Bass	
063	Electric Bass	
064	Gut Guitar	

No.	PCM Name	Remarks
065	Steel Guitar	
066	Dirty Guitar	
067	Pizzicato	
068	Harp	
069	Contrabass	
070	Cello	
071	Violin-1	
072	Violin-2	
073	Koto	
074	Drawbars (Loop)	Sustained Sound
075	High Organ (Loop)	
076	Low Organ (Loop)	
077	Trumpet (Loop)	
078	Trombone (Loop)	
079	Sax-1 (Loop)	
080	Sax-2 (Loop)	
081	Reed (Loop)	
082	Slap Bass (Loop)	
083	Acoustic Bass (Loop)	
084	Electric Bass-1 (Loop)	
085	Electric Bass-2 (Loop)	
086	Gut Guitar (Loop)	
087	Steel Guitar (Loop)	
088	Electric Guitar (Loop)	
089	Clav (Loop)	
090	Cello (Loop)	
091	Violin (Loop)	
092	Electric Piano-1 (Loop)	
093	Electric Piano-2 (Loop)	
094	Harpsichord-1 (Loop)	
095	Harpsichord-2 (Loop)	
096	Telephone Bell (Loop)	
097	Female Voice-1 (Loop)	
098	Female Voice-2 (Loop)	
099	Male Voice-1 (Loop)	
100	Male Voice-2 (Loop)	
101	Spectrum-1 (Loop)	
012	Spectrum-2 (Loop)	
103	Spectrum-3 (Loop)	
104	Spectrum-4 (Loop)	
105	Spectrum-5 (Loop)	
106	Spectrum-6 (Loop)	
107	Spectrum-7 (Loop)	
108	Spectrum-8 (Loop)	
109	Spectrum-9 (Loop)	
110	Spectrum-10 (Loop)	
111	Noise (Loop)	
112	Shot-1	Decay Sound
113	Shot-2	
114	Shot-3	
115	Shot-4	
116	Shot-5	
117	Shot-6	
118	Shot-7	
119	Shot-8	
120	Shot-9	
121	Shot-10	
122	Shot-11	
123	Shot-12	
124	Shot-13	
125	Shot-14	
126	Shot-15	
127	Shot-16	
128	Shot-17	

* When a "Shot" of 112 to 128 in Bank 1 is selected, noise may be heard.

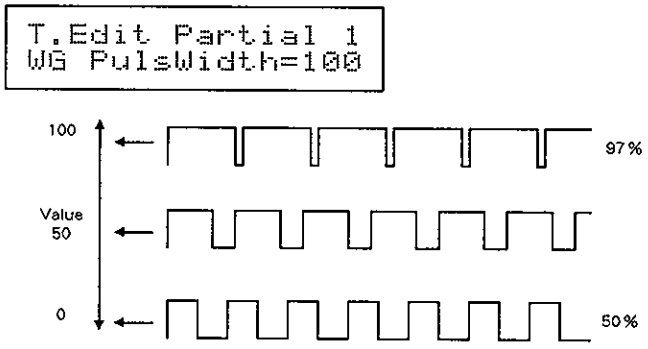
[Bank 2]

No.	PCM Name	Remarks
001	Bass Drum-1*	Rhythm Sound (The pitch is not affected by Master Tuning.)
002	Bass Drum-2*	
003	Bass Drum-3*	
004	Snare Drum-1*	
005	Snare Drum-2*	
006	Snare Drum-3*	
007	Snare Drum-4*	
008	Tom Tom-1*	
009	Tom Tom-2*	
010	High-Hat*	
011	High-Hat* (Loop)	
012	Crash Cymbal-1*	
013	Crash Cymbal-2* Loop)	
014	Ride Cymbal-1*	
015	Ride Cymbal-2* (Loop)	
016	Cup*	
017	China Cymbal-1*	
018	China Cymbal-2* (Loop)	
019	Rim Shot*	
020	Hand Clap*	
021	Mute High Conga*	
022	Conga*	
023	Bongo*	
024	Cowbell*	
025	Tambourine*	
026	Agogo*	
027	Claves*	
028	Timbale High*	
029	Timbale Low*	
030	Cabasa*	
031	Loop-1	Effect Sound (Repeats of the same sound)
032	Loop-2	
033	Loop-3	
034	Loop-4	
035	Loop-5	
036	Loop-6	
037	Loop-7	
038	Loop-8	
039	Loop-9	
040	Loop-10	
041	Loop-11	
042	Loop-12	
043	Loop-13	
044	Loop-14	
045	Loop-15	
046	Loop-16	
047	Loop-17	
048	Loop-18	
049	Loop-19	
050	Loop-20	
051	Loop-21	
052	Loop-22	
053	Loop-23	
054	Loop-24	
055	Loop-25	
056	Loop-26	
057	Loop-27	
058	Loop-28	
059	Loop-29	
060	Loop-30	
061	Loop-31	
062	Loop-32	
063	Loop-33	
064	Loop-34	

No.	PCM Name	Remarks
065	Loop-35	
066	Loop-36	
067	Loop-37	
068	Loop-38	
069	Loop-39	
070	Loop-40	
071	Loop-41	
072	Loop-42	
073	Loop-43	
074	Loop-44	
075	Loop-45	
076	Loop-46	
077	Loop-47	
078	Loop-48	
079	Loop-49	
080	Loop-50	
081	Loop-51	
082	Loop-52	
083	Loop-53	
084	Loop-54	
085	Loop-55	
086	Loop-56	
087	Loop-57	
088	Loop-58	
089	Loop-59	
090	Loop-60	
091	Loop-61	
092	Loop-62	
093	Loop-63	
094	Loop-64	
095	Jam-1 (Loop)	Effect Sound (Repeats of combined sounds)
096	Jam-2 (Loop)	
097	Jam-3 (Loop)	
098	Jam-4 (Loop)	
099	Jam-5 (Loop)	
100	Jam-6 (Loop)	
101	Jam-7 (Loop)	
102	Jam-8 (Loop)	
103	Jam-9 (Loop)	
104	Jam-10 (Loop)	
105	Jam-11 (Loop)	
106	Jam-12 (Loop)	
107	Jam-13 (Loop)	
108	Jam-14 (Loop)	
109	Jam-15 (Loop)	
110	Jam-16 (Loop)	
111	Jam-17 (Loop)	
112	Jam-18 (Loop)	
113	Jam-19 (Loop)	
114	Jam-20 (Loop)	
115	Jam-21 (Loop)	
116	Jam-22 (Loop)	
117	Jam-23 (Loop)	
118	Jam-24 (Loop)	
119	Jam-25 (Loop)	
120	Jam-26 (Loop)	
121	Jam-27 (Loop)	
122	Jam-28 (Loop)	
123	Jam-29 (Loop)	
124	Jam-30 (Loop)	
125	Jam-31 (Loop)	
126	Jam-32 (Loop)	
127	Jam-33 (Loop)	
128	Jam-34 (Loop)	

●Pulse Width

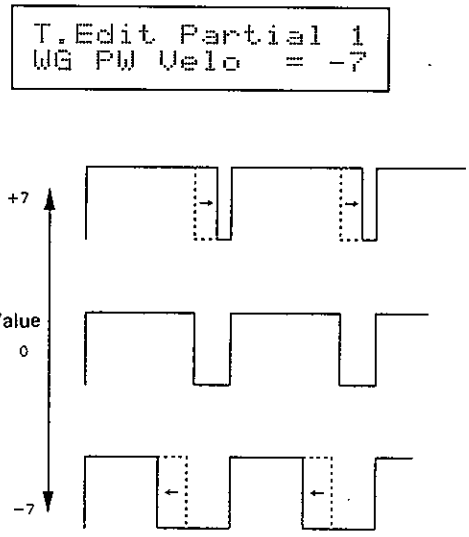
A square waveform has exactly the same width, up and down, but a Pulse Width waveform has different widths. The ratio of upper width to lower is called pulse width. 0 to 100 are valid for setting the pulse width. The harmonic content of the sound changes greatly.



*When a sawtooth is selected with the WG Waveform parameter, a pulse width of 50% raises the pitch by an octave.

●Pulse Width Velocity Sensitivity

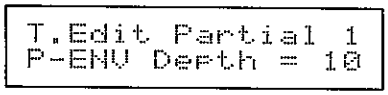
This sets the sensitivity of the velocity that controls the pulse width from −7 to +7. With "−" values, the pulse width becomes smaller by playing the guitar harder, and with "+" values, the pulse width becomes wider by playing the guitar harder.



< Pitch ENV Group >

●Pitch ENV Depth PCM

This sets the depth of the Pitch ENV from 0 to 10. Higher values deepen the effect.



●Pitch ENV Velocity Sensitivity PCM

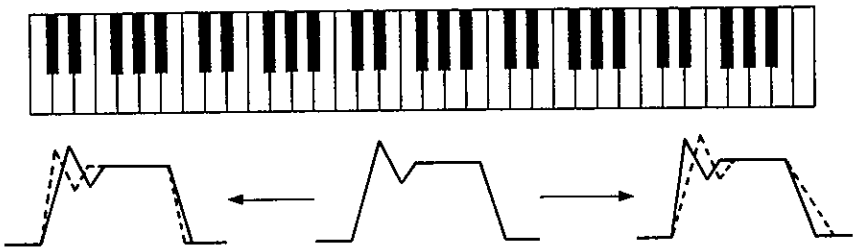
This sets the maximum effect of the velocity that controls the pitch of the Pitch ENV from 0 to 3. At higher values, the string (keyboard) velocity has a greater effect on the envelope.

```
T.Edit Partial 1
P-ENV Velo  =  3
```

●Pitch ENV Key Follow (Time) PCM

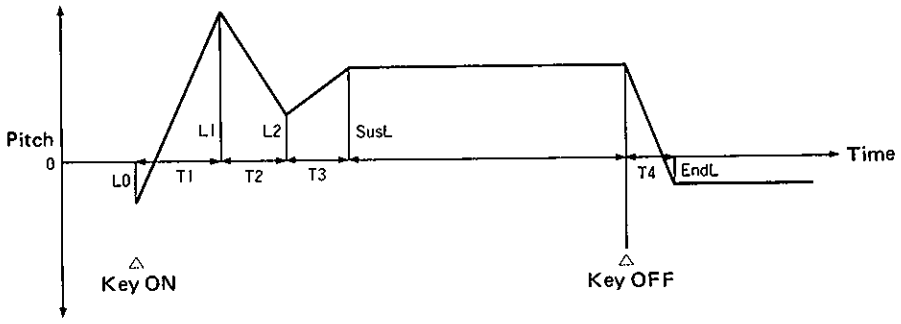
This sets the time of the Pitch ENV depending on the key (pitch) played, from 0 to 4. Higher values change the time more drastically.

```
T.Edit Partial 1
P-ENV TimeKF=  4
```



●Pitch ENV Time/Level PCM

These parameters change the times needed for pitch curves to move from one point to another, and the pitch levels of certain points.



●Time 1/ Time 2/ Time 3/Time 4 PCM

These set the times needed from one point to another, from 0 to 100.

```
T.Edit Partial 1
P-ENV T1     =100
```

T1 to T4

●Level 0/ Level 1/ Level 2/ Sustain Level/ End Level PCM

These set the pitches of each point from −50 to +50.

```
T.Edit Partial 1
P-ENV L0     =+20
```

L0, L1, L2, Sus, End

*If the level of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

< LFO Group >

●LFO Rate PCM

This sets the rate of the LFO from 0 to 100. Higher values quicken the rate.

```
T.Edit Partial 1
P-LFO Rate   =100
```

●LFO Depth PCM

This sets the depth of the LFO from 0 to 100. Higher values deepen the effect.

```
T.Edit Partial 1
P-LFO Depth =100
```

●Modulation Sensitivity PCM

This sets the sensitivity of the vibrato depth controlled by the modulation messages sent from the external controller unit. 0 to 100 are valid. Higher values deepen the effect.

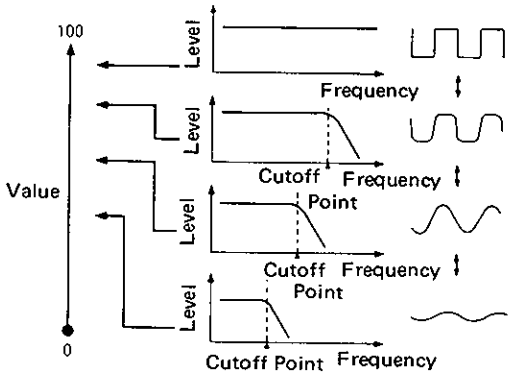
```
T.Edit Partial 1
P-LFO Mod    =100
```

< TVF Group >

●Cutoff Frequency

This sets the cutoff point of the TVF from 0 to 100. As you lower the value, higher frequencies are removed and the waveform gradually becomes an approximation of a sine wave, then the sound will finally fade out.

```
T.Edit Partial 1
TVF Freq     =100
```

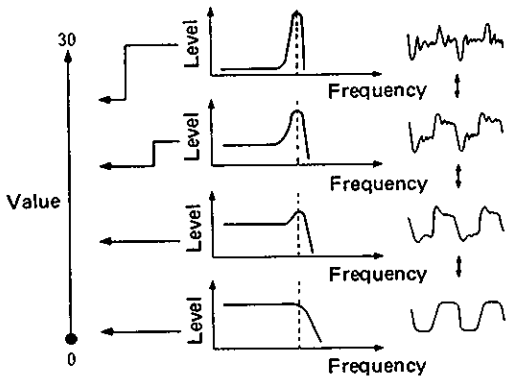


*If this parameter is set too low, no sound will be heard.

● Resonance

This boosts the cutoff point from 0 to 30. As you increase the value, specific harmonics are emphasized and the sound will become more unusual, more electronic in nature.

```
T.Edit Partial 1
TVF Reso     = 30
```

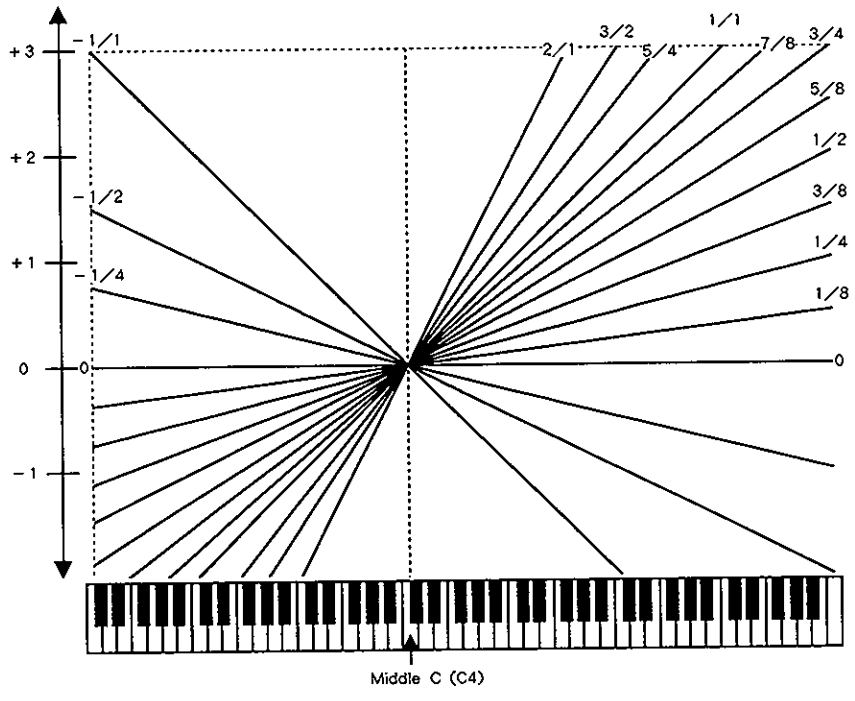


●Key Follow (Frequency)

This can change the cutoff point depending on the key (pitch) played.

```
T.Edit Partial 1
TVF Freq KF= 1/8
```

Just like the Key Follow of WG Pitch, the value represents how many octaves are changed over 12 keys (frets).



● Bias Point/Level

You can add a further change (bias level) to the Key Follow curve from any key (pitch).

● Bias Point

This sets the range (point and direction) where the bias level is valid, from < A1 to < C7 and from > A1 to > C7 in semi tone steps.

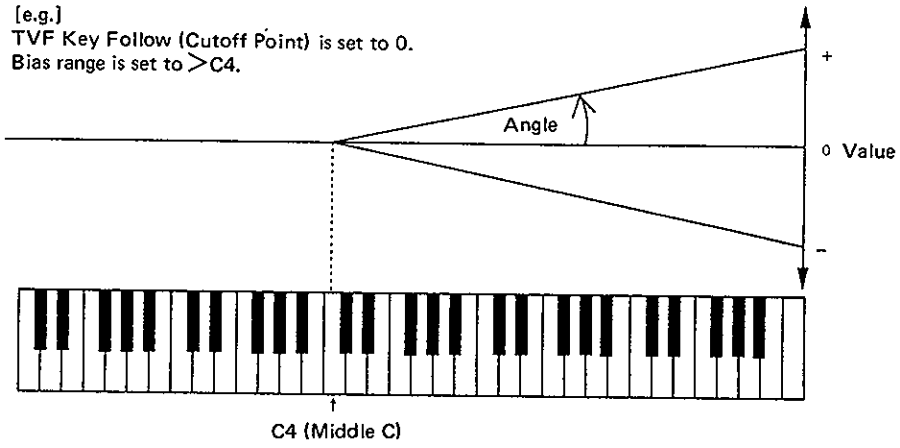
```
T.Edit Partial 1
TVF Bias P =< A1
```

< Examples > **< C4 : The bias level is valid on the notes below the C4 key.**
> C4 : The bias level is valid on the notes above the C4 key.

● Bias Level

The bias level can be set from −7 to +7. "+" values raise the curve, and "−" values lower the curve.

```
T.Edit Partial 1
TVF Bias Lvl= -7
```



*The modified curve is the Key Follow value combined with the bias level, therefore it will have a different effect if the key follow curve is different.

< TVF ENV Group >

● ENV Depth

This sets the depth of the TVF ENV modulation that changes the TVF Cutoff point. 0 to 100 are valid. At higher values, the effect is deeper.

```
T.Edit Partial 1
TVF-ENV Dept=100
```

●ENV Velocity Sensitivity

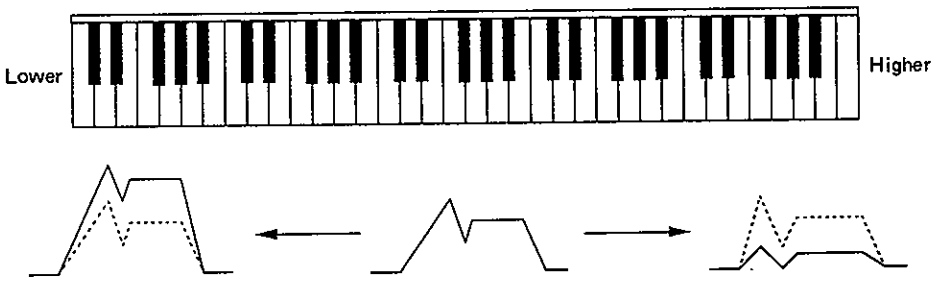
This sets the sensitivity of the velocity that controls the depth of the TVF ENV. 0 to 100 are valid. At higher values, the effect is deeper by playing the guitar (keyboard) harder.

```
T.Edit Partial 1
TVF-ENV Velo=100
```

●ENV Key Follow (Depth)

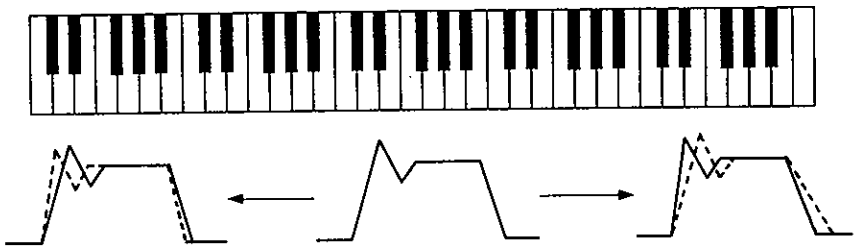
This can change the TVF ENV depth depending on the key played. 0 to 4 are valid, higher values changing the depth more drastically.

```
T.Edit Partial 1
TVF-ENV DKF =  4
```



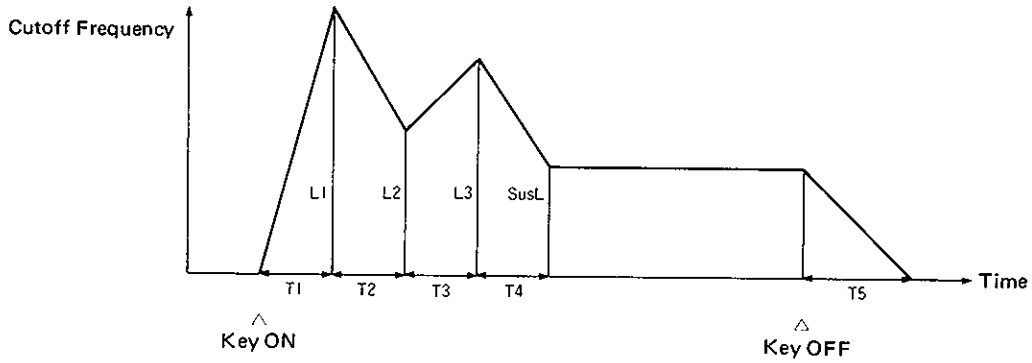
●ENV Key Follow (Time) This can change the time of the TVF ENV depending on the key played. 0 to 4 are valid, higher values changing the time more drastically.

```
T.Edit Partial 1
TVF-ENV TKF =  4
```



●ENV Time／Level

These parameters are the times needed for the envelope curve affecting the cutoff frequency to move from one point to another, and the levels of the cutoff frequency at certain points.



●Time 1／ Time 2／ Time 3／ Time 4／ Time 5

These set the times needed for one point to another, from 0 to 100.

```
T.Edit Partial 1
TVF-ENV T1   =100
```

T1 to T5

●Level 1／ Level 2／ Level 3／ Sustain Level

These set the levels of certain points from 0 to 100.

```
T.Edit Partial 1
TVF-ENV L1   =100
```

L1, L2, L3, SusL

*If the level of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

< TVA Group >

●Level PCM

This sets the volume of a Partial from 0 to 100.

```
T.Edit Partial 1
TVA Level    =100
```

* Higher values may cause sound distortion. If so, lower the value.

*Even when this is set to zero here, the sound may not be completely muted if the TVA ENV curve is high.

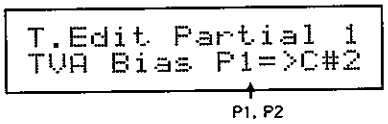
●Velocity Sensitivity PCM

This sets the sensitivity of the velocity that controls the volume of the sound source from −50 to +50. "−" values lower the level by harder playing, and "+" values raise the level by harder playing.

```
T.Edit Partial 1
TVA Velocity=+50
```

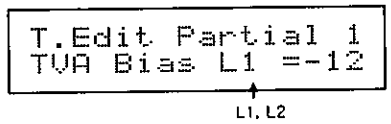
●Bias Point/Level — You can add further change (bias level) to the volume level from any key (pitch).

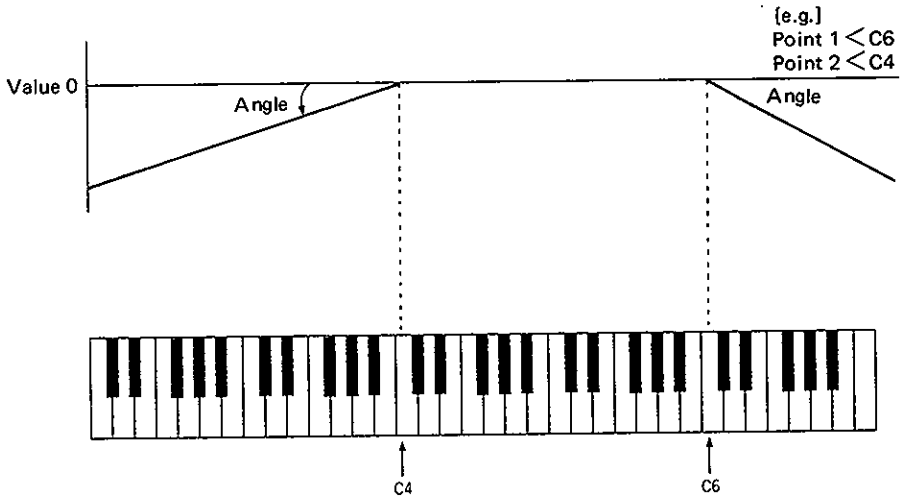
●Bias Points 1 and 2 PCM — These set the range (point and direction) where the bias level is valid at two positions, from <A1 to <C7 and from >A1 to >C7 in semi tone steps.



< Examples > **<C4 : The bias level is valid on the notes below the C4 key.**
>C4 : The bias level is valid on the notes above the C4 key.

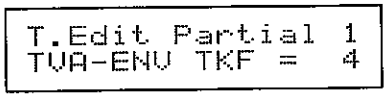
●Bias Levels 1 and 2 PCM — The bias levels can be set from 0 to −12. Lower values lower the curve.

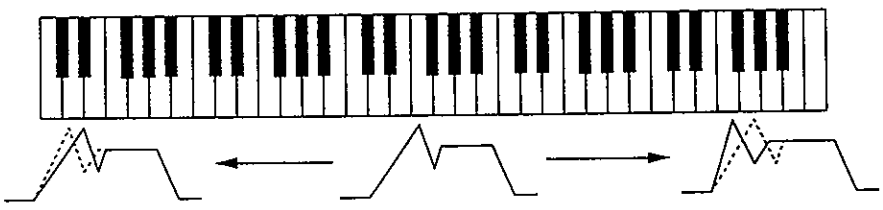




< TVA ENV Group >

●TVA ENV Key Follow (Time) PCM — This sets the time of the TVA ENV depending on the key position (pitch), from 0 to 4. Higher values change the time more drastically.

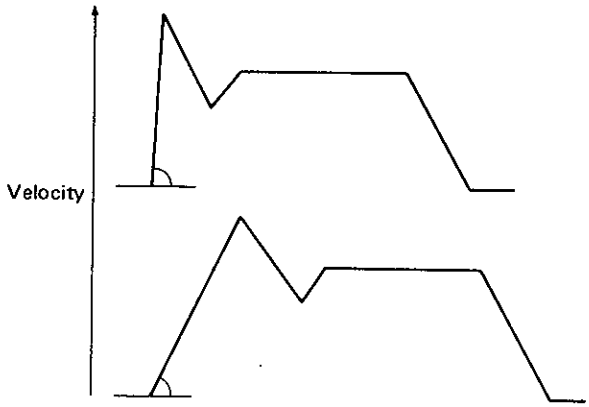




●TVA ENV Velocity Follow (Time 1) PCM

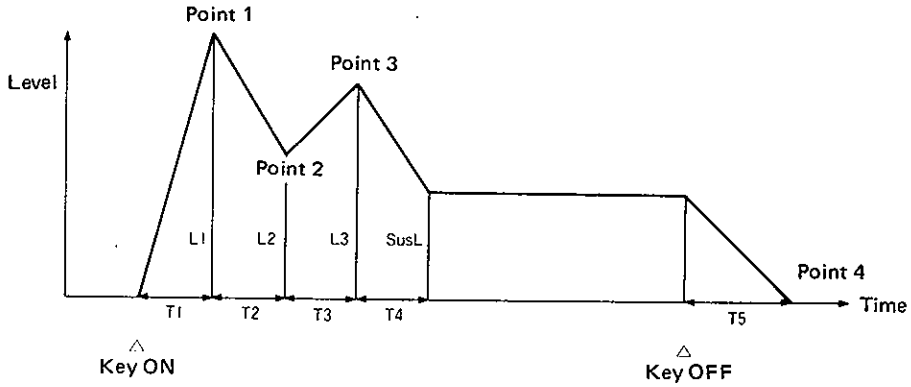
This sets the maximum effect of the velocity that controls the time of the TVA ENV from 0 to 4. At higher values, Time 1 will be shortened by playing the guitar (keyboard) harder.

```
T.Edit Partial 1
TVA-ENV T1VF=  4
```



●TVA ENV Time/Level PCM

These parameters are the times needed for volume curves to move from one point to another, and the volumes of certain points.



●Time 1/ Time 2/ Time 3/ Time 4/ Time 5 PCM

These set the times needed for the curves to move from one point to another, from 0 to 100.

```
T.Edit Partial 1
TVA-ENV T1   =  4
```

T1 to T5

●Level 1/ Level 2/ Level 3/ Sustain Level PCM

These set the volumes of certain points from 0 to 100.

```
T.Edit Partial 1
TVA-ENV L1   =  4
```

L1, L2, L3, SusL

*If the level of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

5. Tone Writing

The Tone editing procedure does not automatically rewrite the existing Tone, and therefore will be erased by selecting a different Patch, Timbre or switching the unit off. To retain the edited Tone in memory, take an appropriate writing procedure, into the internal memory or onto a memory card. To write data onto a memory card, set the protect switch on the card to the OFF position first, then when the writing is completed, return the protect switch to the ON position.

The data which can be written by the Patches or Tone Writing procedure are :

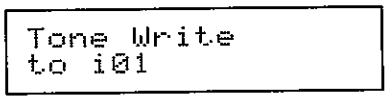
Data Written by Tone Writing

Parameter	Mode
All the Common Parameters All the parameters of Partial 1 to 4	Tone Edit

*The Tone Writing procedure will change all the Patches or Timbres that use the rewritten Tones.

*You cannot write an edited Tone into group a, b or r, as they are Preset Tones. Tones in group i or c can be used for writing new Tones.

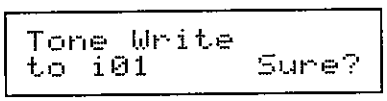
Step 1 **With the unit turned to the Tone Edit mode, press [WRITE/COPY] to enter the Tone Write mode.**



Step 2 **The display shows the Tone you have just edited. If you wish to write it into the same location (Tone number in group i or c), go to the next step. To write it into a different Tone number (destination Tone), specify the Tone group (i or c) with [PARAM B], then the Tone number with [VALUE]**

*When a memory card is not connected, Tones in c group cannot be used.

Step 3 **Press [ENTER].**



Step 4 **Press [WRITE/COPY].**

*To stop the writing procedure, press [−PAGE]. The display will return to the condition before any writing procedure was taken.

When data is written, the display responds as shown below, then returns to the condition before the writing procedure was taken.

```
Tone Write
Complete
```

If you try to write data into the internal memory with the Memory Protect in the System Group set to ON, the display responds as shown below.

```
Memory Protected
Turn off once ?
```

Pressing [ENTER] will disable the protect function, writing data into memory. Pressing [−PAGE] will exit the writing mode and returns the display to the condition prior to writing.

If you try to write data onto a memory card with the Memory Protect switch set to on, the following display will be shown.

```
Card Protected
```

Set the Protect switch on the memory card to OFF, then repeat the procedure.
Return the Protect Switch on the memory card to ON when you finish writing.

*When data is not written correctly, an error message will appear. If so, resolve it as instructed in "Error Messages" on page 146.

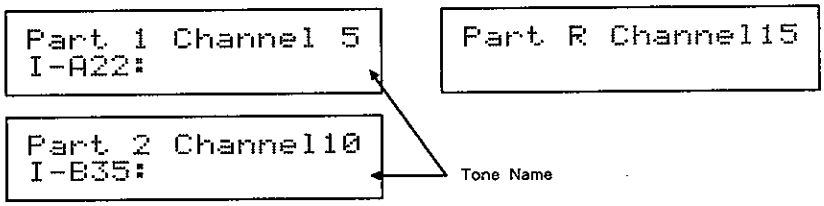
[5] Multi Timbre Setting

[1] PART DISPLAY

The GR-50 features the Part Display function that allows you to monitor the MIDI receive channel of each Part or Tone assigned to the Timbre used in the Part when playing the internal sound source with an external MIDI controller.

Step 1 **With the unit set to the Play mode, press [PART] to change to the Part Display mode.**

Step 2 **Select Part 1, 2 or Rhythm part with [PART].**



* The Rhythm Part Display shows only the MIDI channel.

Press PLAY or [-PAGE] to return to the Play mode.

*If you change Patches (with guitar's S1/S2, FC-100, panel switches or Program Change) in the Part Display mode, the unit will be automatically set to the Play mode. (The indicator of PLAY lights in green.)

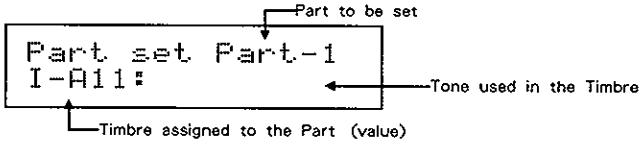
[2] PART SETTING

The MIDI channel and Volume of Part 1, 2 or the Rhythm Part can be edited.

1. Procedure

Step 1 **With the unit set to the Play mode, press [PART] to change to the Part Display mode.**

Step 2 **Press [+PAGE] to change to the Part Setting mode.**

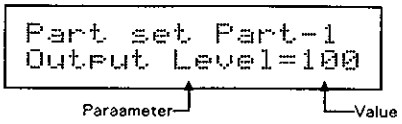


Step 3 **Press [PART] to select the Part to be edited.**

Step 4 **Select the desired parameter with [PARAM A].**

*In the Rhythm Part, only the Output Level and MIDI Channel can be edited.

Step 5 **When you have selected Timbre Select in Step 4:**
Press [PARAM B] to select Timbre I-A, I-B, C-A or C-B.



Step 6 **Change the value with [VALUE].**

Step 7 **Repeat Steps 3 to 6 as many times as necessary.**

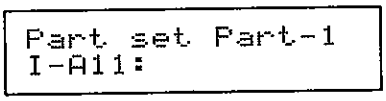
Step 8 **Press PLAY to return to the Play mode. (The indicator of PLAY lights in green.)**

*Pressing [−PAGE] once will give you the Part Display mode, and pressing it twice will take you to the Play mode.

2. Part Parameters

● Timbre Select

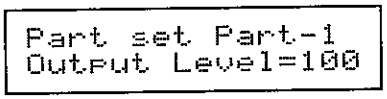
This selects Timbres to be assigned to Parts 1 and 2 from All (I – A11 to I – A88, I – B11 to I – B88, C-A11 to C-A88, C-B11 to C-B88).



*When a memory card is not connected, Timbres on the memory card cannot be used.

● Output Level

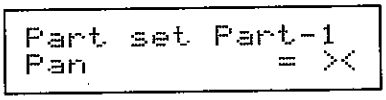
This sets the level of each Part from 0 to 100. Higher values increase the volume.



*The actual volume of the output is relative, depending on settings mode for the TVA Level (Tone parameters), MIDI Volume and Expression.

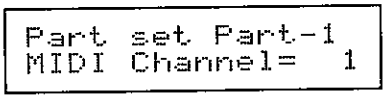
● Pan

Pan is the positioning of the sound imaging output in stereo through the Mix Outputs.
For an explanation of the relationship between the settings and sound imaging, see page 66.



● MIDI Channel

The MIDI receive channel of a Part can be set from 1 to 16, or OFF.



*When the MIDI channel of a Part is set to OFF, the Part does not function.

*A Multi Timbral Part will be automatically set to OMNI OFF and Poly mode.

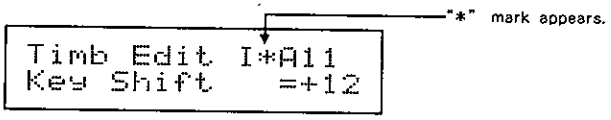
*An edited version of Part data is automatically written into memory every time, and therefore does not need the writing procedure.

[3] TIMBRE EDITING

Parameters used in a Timbre, such as Tone and Bender Range can be edited.

*The edited version of Timbre settings is erased by selecting a new Timbre or switching the unit off. To retain the data, use the Timbre Writing procedure (see page 114).

*If you do not write the edited Timbre into memory, the display will respond with :



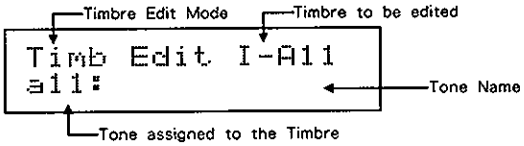
1. Procedure

Step 1 **With the unit set to the Timbre Selecting Display in the Part Setting mode for Part 1 or 2, select the Timbre to be edited.**

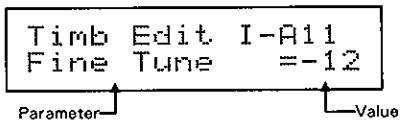
* Use [PARAM B] and [VALUE] to select a Timbre.

*When a memory card is not connected, Timbres on the memory card cannot be used.

Step 2 **Press [+PAGE] to enter the Timbre Edit mode.**



Step 3 **Select a parameter to be edited with [PARAM A].**



Step 4 **When you have selected Tone Select in Step 3:**
Press [PARAM B] to select a Tone group.

*When a memory card is not connected, Tones on the memory card cannot be used.

Step 5 **Change the value with [VALUE].**

Step 6 **Repeat Steps 3 to 5 as many times as necessary.**

Step 7 **If you wish to save changes to settings, carry out the Timbre Write procedure (Page 114).**

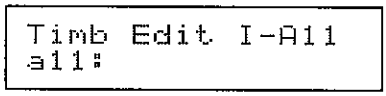
Step 8 **Press PLAY to return to the Play mode. (The indicator of PLAY lights in green.)**

***Pressing [−PAGE] once will change to the Timbre Select Display in the Part Setting mode, and pressing it twice will change to the Part Display mode.**

2. Timbre Parameters

● Tone Select

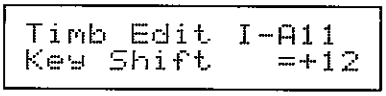
This selects Tones to be assigned to a Timbre. A Tone is represented with a Group and a Number. Assign a Group with **PARAM B**, and assign a Number with **VALUE**.



*A Timbre in the internal memory cannot use Tones on a memory card (c group). A Timbre on a memory card cannot use Tones in the internal memory (i group).

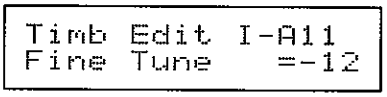
● Key Shift

The pitch of the Tone can be set from −24 to +24 (−2 to +2 octaves) in semitone steps.



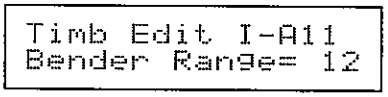
● Fine Tune

The pitch of the Tone can be finely changed from −50 to +50 (cents).



● Bender Range

This sets the variable range of the pitch change caused by receiving Bender messages, from 0 to 24 (from −2 to +2 octaves) in semi tone steps.



*If the Bender Switch (Partial parameter) in the WG group of Tone Parameters is set to OFF, the Partial is not affected by receiving bender messages.

● Assign Mode

Assign mode refers to how each Tone should be played by the MIDI Key messages.

```
Timb Edit I-A11
Assign Mode =  2
```

1 : Single Assign - played with Last Note Priority
2 : Single Assign - played with First Note Priority
3 : Multi Assign - played with Last Note Priority
4 : Multi Assign - played with First Note Priority

< Single Assign and Multi Assign >

● Single Assign

In this mode, when more than one Note ON message is received by the same note name (pitch) on the same MIDI channel, the sound of the note is muted once, then played again.

● Multi Assign

In this mode, when more than one Note ON message is received by the same note name (pitch) on the same MIDI channel, the two sounds are mixed.

< Last Note Priority and First Note Priority >

● Last Note Priority

In this mode, when the GR-50 has received more Note ON messages than the maximum of voices, the earlier messages are replaced by the later ones.

● First Note Priority

In this mode, when the GR-50 has received more Note On messages than the maximum of voices, the later messages are ignored, retaining the current playing sounds.

● Reverb Switch

This selects whether the Timbre should take on the reverb effect set with Patch Common or not. (ON/OFF)

```
Timb Edit I-A11
Reverb SW   =OFF
```

* Reverb effect may be different in each Patch.

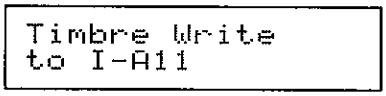
3. Timbre Writing

The Timbre editing procedure does not automatically rewrite the existing data, and therefore it will be erased by selecting a different Timbre or switching the unit off. To retain the edited Timbre in memory, take an appropriate writing procedure; into the internal memory or onto a memory card. To write data onto a memory card, set the protect switch on the card to the OFF position first, then when the writing is completed, return the protect switch to the ON position.

*If you use the Timbre writing procedure to write data in the internal memory onto a card, Tones in i group (Internal user-programmed Tones) will be automatically switched with the Tones in c group (user-programmed Tones on the memory card), consequently, the sound will change. To avoid this, using the Tone Writing procedure, write the Tones in i group onto the Tones in c group. The same thing applies to writing data on a memory card into the internal memory.

*The list of the Timber Parameters that can be written in the Timbre Writing is shown on page 149.

Step 1 **In the Timbre Edit mode, press [WRITE/COPY] to change to the Timbre Write mode.**



Step 2 **The Timbre number you have just edited will be shown in the display. If you wish to write the edited data in the same location (Timbre number), go to Step 3.**
If you wish to write it into a different Timbre number, specify the destination Timbre number with [PARAM A] (I-A, I-B, C-A or C-B), [PARAM B] and [VALUE].

*When a memory card is not connected, Timbres on the memory card cannot be used.

Step 3 **Press [ENTER].**

```
Timbre Write
to I-A11   Sure?
```

Step 4 **Press [WRITE/COPY].**

*To stop the writing procedure, press [−PAGE]. The display will return to the condition before any writing procedure was taken.

When data is written, the display responds as shown below, then returns to the condition before the writing procedure was taken.

```
Timbre Write
Complete
```

If you try to write data into the internal memory with the Memory Protect set to ON, the display responds as shown below.

```
Memory Protected
Turn off once ?
```

Pressing [ENTER] will disable the protect function, writing data into memory. Pressing [−PAGE] will exit the writing mode and returns the display to the condition prior to writing.

If you try to write data onto a memory card with the Memory Protect switch set to on, the following display will be shown.

```
Card Protected
```

Set the Protect switch on the memory card to OFF, then repeat the procedure.
Return the Protect Switch on the memory card to ON when you finish writing.

*When data is not written correctly, an error message will appear. If so, resolve it as instructed in "Error Messages" on page 146.

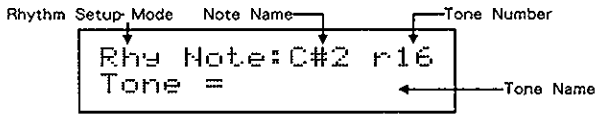
[4] RHYTHM SETUP

The Rhythm Setup involves Tone assignment and output of the each Tone for each note (key) separately from C1 (24) to C8 (108).

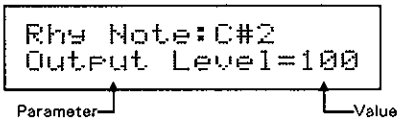
1. Procedure

Step 1 **With the unit set to the Part Setting mode in the Rhythm Part, press [+PAGE] to change to the Rhythm Setup mode.**

Step 2 **Press [PART] to select the desired note name from C 1 to C8.**



Step 3 **Select a parameter to be edited with [PARAM A].**



Step 4 **Set the value with [VALUE].**

Step 5 **Repeat Steps 2 to 4 as many times as necessary.**

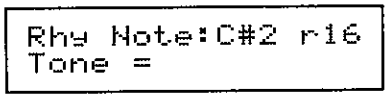
Step 6 **Press PLAY to return to the Play mode. (The indicator of PLAY lights in green.)**

*Pressing [−PAGE] once will give you the Rhythm Part Setting mode, and pressing it twice takes you to the Rhythm Part Display mode.

2. Rhythm Setup Parameters

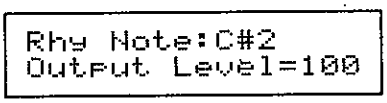
● Tone Select

This selects a rhythm tone from 64 different Preset Rhythm Tones. When r64 (OFF) is selected, no rhythm tone is assigned.



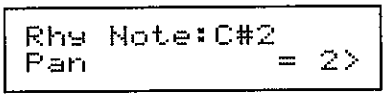
● Output Level

This sets the volume of each Tone. 0 to 100 are valid, higher values increasing the volume.



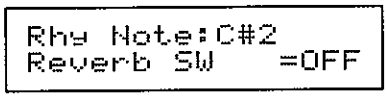
● Pan

This sets the positioning of the sound imaging output in stereo through the Mix Output Sockets.
For details of relationship between settings and sound imaging, see page 66.



● Reverb Switch

This selects whether the Tone should take on the reverb effect set in Patch Common or not. (ON/OFF)



* Reverb effect may be different in each Patch.

⑥ SYSTEM SETUP

The System Setup section involves the parameters that are related with the overall setting of the GR-50. It includes three parameter groups.

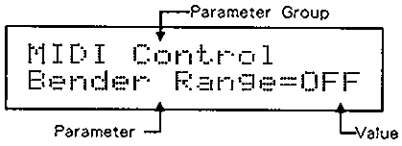
*Master Tuning is one of the System Setup parameters, but it is controlled separately using the [TUNE] button.

* The list of the System Setup Parameters is shown on page 151.

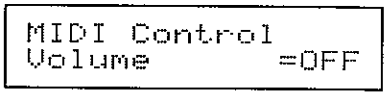
1. Procedure

Step 1 **With the unit set to the Play mode, press [SYSTEM] to change to the System Setup mode.**

Step 2 **Press [PART] to select one of the three groups.**



Step 3 **Select a parameter to be set with [PARAM A].**



Step 4 **Set the value with [VALUE].**

Step 5 **Repeat Steps 2 to 4 as many times as necessary.**

Step 6 **Press [PLAY] to return to the Play mode. (The indicator of [PLAY] lights in green.)**

* Pressing [– PAGE] can also return the unit to the Play mode.

2. System Setup Parameters

● Master Tuning

The Master Tuning sets the overall tuning (frequency of the standard pitch A4) of the internal sound source, from 430.0 to 449.9Hz. (See page 23 "Tuning".)

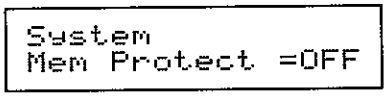
< Control Assign Group >

The Parameters in the Control Assign Group are fully explained in the following section "Control Assign" (See page 124).

< System Group >

● Memory Protect

The Memory Protect function is provided for protecting data in the internal memory from accidental erasure. To write data into the internal memory you should set the Memory Protect to OFF. Even when you have forgotten to set the Memory Protect to OFF, this can be temporarily canceled. If you are using writing procedures continuously such as rearranging Patches, it may be wise to set it to OFF.



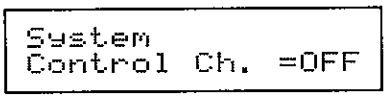
* At power-up, the GR-50 is default to Memory Protect ON.

*Data rewriting via MIDI Exclusive (data transfer) will be achieved regardless of the Memory Protect status.

● Control Channel

The Control channel receives Program Change, Bender, Modulation, Volume, Reset All Controllers, General Purpose Control – 1 and General Purpose Control – 6 messages.
1 to 16 and OFF are valid.

*For detailed explanation about Reset All Controllers, General Purpose Control – 1 and General Purpose Control – 6, see the MIDI Implementation.

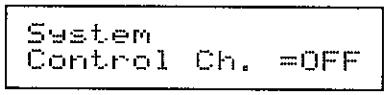


When a Program Change is received on the Control channel, a Patche in the internal memory or on a card will be called. Program Change numbers correspond with Patch numbers as shown below.

● Control Channel

The Control channel receives Program Change, Bender, Modulation, Volume and Reset All Controllers messages. 1 to 16 and OFF are valid.

*For detailed explanation about Reset All Controllers, see the MIDI Implementation.



When a Program Change is received on the Control channel, a Patche in the internal memory or on a card will be called. Program Change numbers correspond with Patch numbers as shown below.

	Bank \ Number	1	2	3	4	5	6	7	8
Internal	1	1	2	3	4	5	6	7	8
	2	9	10	11	12	13	14	15	16
	3	17	18	19	20	21	22	23	24
	4	25	26	27	28	29	30	31	32
	5	33	34	35	36	37	38	39	40
	6	41	42	43	44	45	46	47	48
	7	49	50	51	52	53	54	55	56
	8	57	58	59	60	61	62	63	64
Memory Card	1	65	66	67	68	69	70	71	72
	2	73	74	75	76	77	78	79	80
	3	81	82	83	84	85	86	87	88
	4	89	90	91	92	93	94	95	96
	5	97	98	99	100	101	102	103	104
	6	105	106	107	108	109	110	111	112
	7	113	114	115	116	117	118	119	120
	8	121	122	123	124	125	126	127	128

* 0 to 127 Program Change messages are transmitted.

*The selected Patch is displayed in a different format depending on the Display mode set in the System Group. (See page 121.)

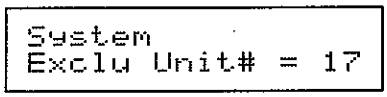
*If a Program Change number for a Patch on a memory card is received without the memory card connected, the corresponding Patch Internal will be selected instead.

When Bender, Modulation or Volume messages are received on the Control Channel, they will take effect on the sound played by Patch Internal, and the external sound module, through MIDI OUT.
When Control Change messages of 0 – 95 number (except for the Modulation or Volume messages) are received, the messages will be transmitted to the external sound module only. They will have no effect on the internal sound source.

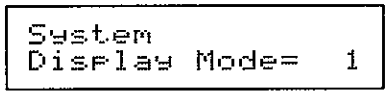
*If you do not want Patch Internal's sounds to be effected in this way set the relevant switches of the MIDI Control Group to OFF. (See page 123.)

● Exclusive Unit Number A Unit Number is used to identify an external MIDI device instead of the MIDI channel number, when data is received or transmitted via the Exclusive messages (only for Roland ID number). So, it is possible to send or receive the Exclusive messages by using appropriate unit numbers, regardless of the MIDI channel setting of each Branch or Part. 17 to 32 are valid for Unit Numbers.
At power-up, the GR-50 is default to Unit Number 17.

When using the optional Programmer (PG-10), set the Unit number of the GR-50 to that of the programmer. (See "Setting the Unit Number" in the PG-10's owner's manual.)



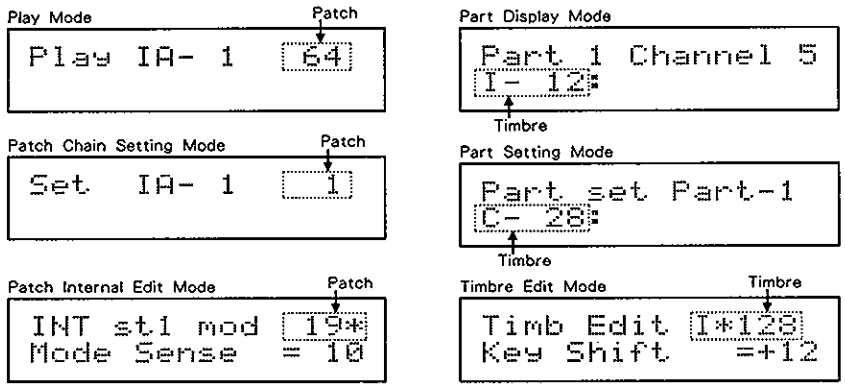
● Display Mode This selects the display formats for a Patch and Timbre. Mode 1 or mode 2 can be selected.



Display Mode 1 Data is represented by I/C, Bank (1 to 8) and Number (1 to 8). Specially when the FC-100 or PG-10 is being used, use this Mode.

Display Mode 2 A Patch is represented by numbers 1 to 128, while a Timbre is shown with I/C (Internal or Memory Card) and numbers 1 to 128. Patches are shown as 1 to 128 (a total number of the internal and memory card). These numbers correspond with Program Change numbers 1 to 128. This mode, therefore, is useful for changing Patches or Timbres with Program Changes sent to MIDI IN.

< Example >



If the edited data is no yet written, "" will light.

*Patches and Timbres correspond with each Display Mode is as shown below.

● Timbre Chart

Group	Number / Bank	1	2	3	4	5	6	7	8
A	1	1	2	3	4	5	6	7	8
	2	9	10	11	12	13	14	15	16
	3	17	18	19	20	21	22	23	24
	4	25	26	27	28	29	30	31	32
	5	33	34	35	36	37	38	39	40
	6	41	42	43	44	45	46	47	48
	7	49	50	51	52	53	54	55	56
	8	57	58	59	60	61	62	63	64
B	1	65	66	67	68	69	70	71	72
	2	73	74	75	76	77	78	79	80
	3	81	82	83	84	85	86	87	88
	4	89	90	91	92	93	94	95	96
	5	97	98	99	100	101	102	103	104
	6	105	106	107	108	109	110	111	112
	7	113	114	115	116	117	118	119	120
	8	121	122	123	124	125	126	127	128

● Patch Chart

	Number / Bank	1	2	3	4	5	6	7	8
Internal	1	1	2	3	4	5	6	7	8
	2	9	10	11	12	13	14	15	16
	3	17	18	19	20	21	22	23	24
	4	25	26	27	28	29	30	31	32
	5	33	31	32	33	34	35	36	37
	6	33	34	35	36	37	38	39	40
	7	41	50	51	52	53	54	55	56
	8	57	58	59	60	61	62	63	64
Memory Card	1	65	66	67	68	69	70	71	72
	2	73	74	75	76	77	78	79	80
	3	81	82	83	84	85	86	87	88
	4	89	90	91	92	93	94	95	96
	5	97	98	99	100	101	102	103	104
	6	105	106	107	108	109	110	111	112
	7	113	114	115	116	117	118	119	120
	8	121	122	123	124	125	126	127	128

*The function of the buttons used for Patch or Timbre selections will vary depending on the Display Mode selected.(See page 46 "Function of Buttons".)

< MIDI Control Group >

●MIDI Control Bender Range

This sets the amount of pitch change of guitar synthesizer sound (Patch Internal) caused by Bender messages sent from the pedal (EV-5) where the bender control function is assigned or MIDI Bender messages received on the Control channel. It can be set in semitone steps from 1 to 24 (from −2 to +2 octaves) or OFF. When it is set to OFF, bender messages are not sent to the Patch Internal, while they are sent to an external sound source.

```
MIDI Control
Bender Range=OFF
```

*The pitch change of the external sound source is determined by the Bender Range set on it. (See page 72 "Bender Range".)

*If the Bender Switch (Partial Parameter) in the WG Group of Tone Parameters is set to OFF, the Partial is not affected by receiving bender messages. (See page 93 "Bender Switch" in "WG Group")

●MIDI Control Modulation Switch

This selects whether the guitar synthesizer sound (Patch Internal) should take on vibrato effect or not by receiving Modulation messages sent from the pedal (EV-5) etc where the modulation control function is assigned or MIDI Modulation messages received on the Control channel. Off does not send Modulation messages to the Patch Internal, but sends them to the external MIDI sound source.

```
MIDI Control
Modulation  =OFF
```

*Depending on the settings of the LFO Depth and Modulation Sensitivity in the LFO Group of the Tone Parameters (both are Partial Parameters), the Partial may not be affected by receiving Modulation messages. (See page 98 "LFO Group")

●MIDI Control Volume Switch

This selects whether the volume of guitar synthesizer sound (Patch Internal) should be controlled or not by receiving Volume messages sent from the pedal (EV-5) where the volume control function is assigned or MIDI Volume messages received on the Control channel. Off does not send Volume messages to the Patch Internal, but sends them to the external MIDI sound source.

```
MIDI Control
Volume      =OFF
```

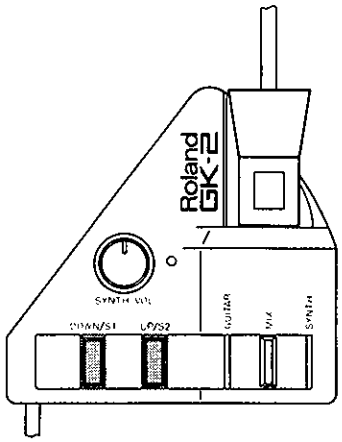
*When the pedal of the EV-5 is fully lifted (where volume level is zero), no sound will be produced.

[7] CONTROL ASSIGN

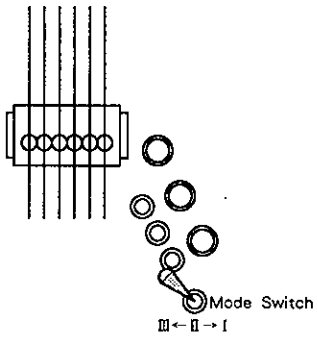
This Control Assign function allows you to assign different functions (parameters) to the knobs and switches on the Guitar Controller or to the connected pedals. The Control Assign you have set will be retained even after you select a different Patch.

1. Assignable Controllers

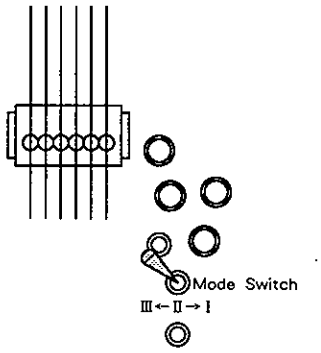
GK – 2	S1 Switch
GK – 2	S2 Switch
G-Siries	Mode Switch I
G-Siries	Mode Switch III
FC – 100	Control Pedal (C)
EV – 5	(Conect to the FC-100)
GK – 1	* Control Assign impossible.

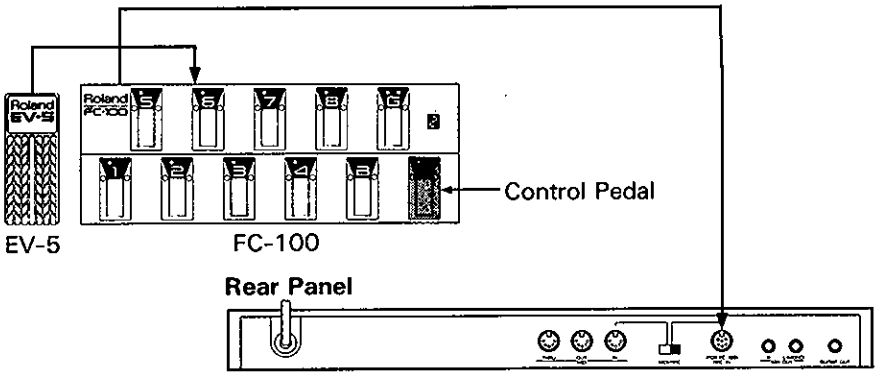


G-707



G-202、303、505、808



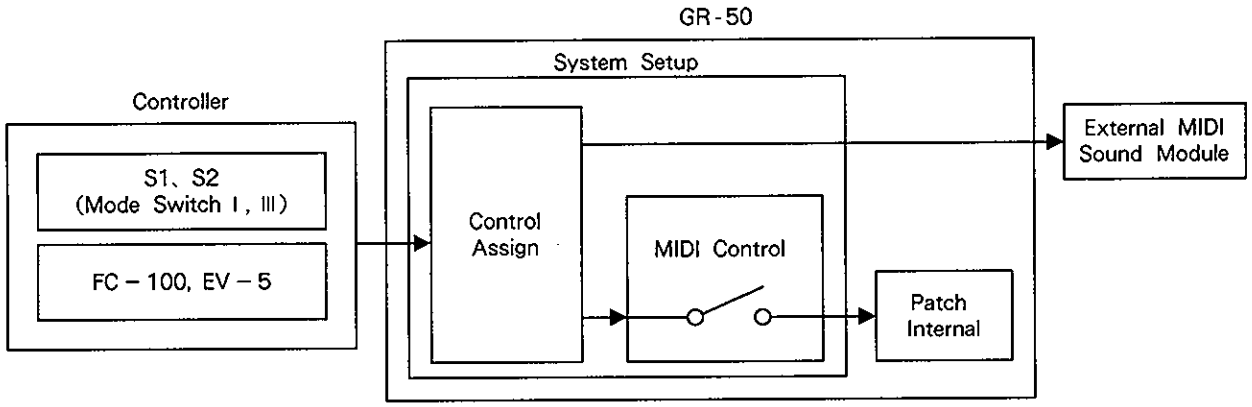


*When using the FC-100, set the MIDI/RRC Selector Switch to the RRC position. This will disengage the MIDI IN Socket.

*The functions other than the Volume will not be engaged until the relevant controller is moved.

Signal Flowchart

Signals sent from the controllers run as shown below.



To use the functions assigned to the controllers, you should set the MIDI Control switch in the System Setup to ON. If set to OFF, the controllers send signals to the external sound module but does not control the sound played by Patch Internal. (See page 123 "System Setup".)

2. Assignable Functions

	S1	S2	EV－5	Control Pedal on the FC－100
Off	○	○	○	○
Patch Chain Down	○	×	×	×
Patch Chain Up	×	○	×	○
Modulation	○	○	○	○
Sostenuto-S	○	○	×	○
Octave Up	○	○	×	○
Volume	×	×	○	×
Bender Up	×	×	○	×
Bender Down	×	×	○	×

● OFF

Select OFF when you do not use any controllers.

● Patch Chain Down

This decreases Patch Chain numbers in the Patch Chain currently selected by pressing the switch.

● Patch Chain Up

This increases Patch Chain numbers in the Patch Chain currently selected by pressing the switch.

● Modulation

When controlling the modulation with the switch :
ON adds vibrato to the currently playing sound in the maximum intensity and OFF will turn off the vibrato effect.

When controlling the modulation with the EV-5 :
The modulation is changed by how you press the pedal.

＊Depending on the settings of the LFO Depth and Modulation Sensitivity in the LFO Group of the Tone Parameters (both are Partial Parameters), the Partial may not be affected by receiving Modulation messages. See page 98 "LFO Group" in "Tone Editing".

● Sostenuto-S

The strings which are being played will be sustained by turning this function on. Even while the Sostenuto-S is on, you can play the other strings (which are not sustained) without Sostenuto-S effect.

● Octave Up

This transposes the sound currently played one octave upward.

● Volume

This controls the volume. The EV-5 allows volume control by changing the angle of the pedal pressing. When the pedal is fully lifted (where volume level is zero), no sound will be produced.

● Bender Up

This increases the pitch of a sound. The EV-5 allows pitch control by changing the angle of the pedal pressing.

*Depending on the setting of the Bender Switch (Partial Parameter) in the WG Group of the Tone Parameters (see page 93), the Partial may not respond to Bender Up.

● Bender Down

This decreases the pitch of a sound. The EV-5 allows pitch control by changing the angle of the pedal pressing.

*Depending on the setting of the Bender Switch (Partial Parameter) in the WG Group of the Tone Parameters (see page 93), the Partial may not respond to Bender Down.

3. Switch Mode

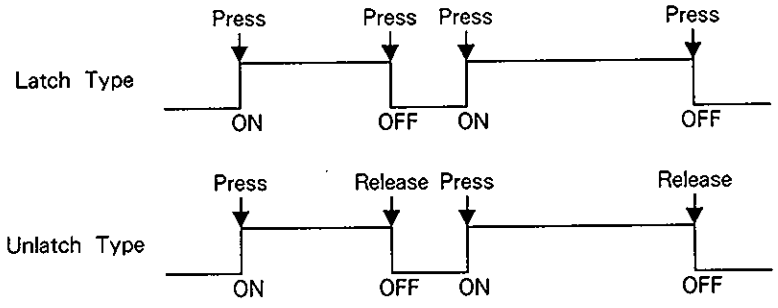
When functions other than Patch Chain Up/Down are assigned to switches (S1, S2, Mode Switches I,II,III or the control pedal of the FC-100), Unlatch or Latch is selectable. This is called Switch Mode.

● Latch Mode

In the Latch mode, the function is turned on when the pedal is pressed, and remains on until the pedal is pressed again. When using a switch on a guitar, the function is on from the moment the switch is pushed down (or pushed forward) and released (returned) until it is pushed down (or pushed forward) again.

● Unlatch Mode

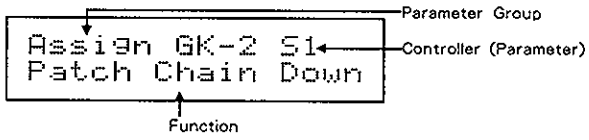
In the Unlatch mode, the function is on while the pedal is being pressed and turned off when the pedal is released. When using a switch on a guitar, the function remains on while the switch is being pressed down (or pushed forward).



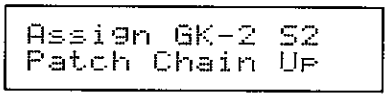
4. Controller Assignment Procedure

Step 1 **Press [SYSTEM] to enter the System Setup mode.**

Step 2 **Press [PART] to select a Parameter Group of the Control Assign.**



Step 3 **Press [PARAM A] to select the controller to be used.**

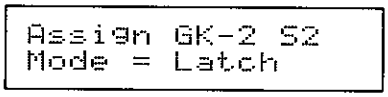


S1 or Mode Switch I ••• "GK-2 S1"
S2 or Mode Switch III ••• "GK-2 S2"

Step 4 **Press [VALUE] to select the function to be assigned to the controller selected in Step 3.**

*Set all the unused controllers to OFF to avoid any complications.

Step 5 **Select the Switch mode for the controller using [PARAM A].**



*The EV-5 does not feature the Switch mode. When the Patch Chain Up/Down is assigned to a controller, the Switch mode has no effect.

Step 6 **Select Latch or Unlatch mode with [VALUE].**

Step 7 **Repeat Steps 3 to 6 to continue to assign functions to the other controllers.**

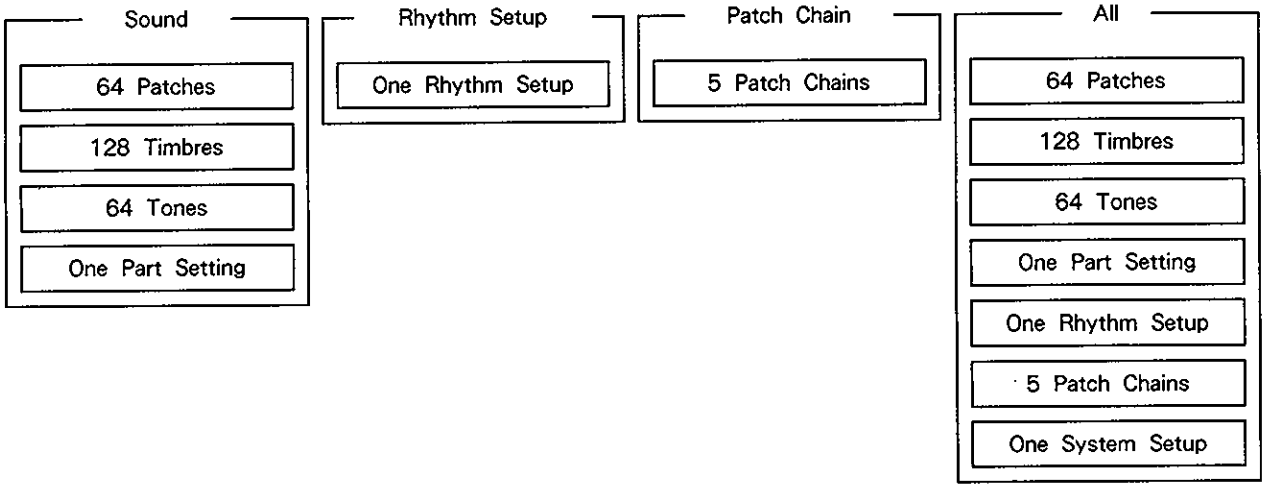
Step 8 **Press PLAY or [– PAGE] to return to the Play mode. (The indicator of the PLAY lights in green.)**

[8] DATA TRANSFER

The total contents of internal memory can be copied onto a memory card, or the entire data on a memory card copied into the internal memory. Also, using Roland MIDI Exclusive messages, the data can be transferred from one GR-50 to another GR-50.

1. Data Block for Data Transfer

Each of the following Data Blocks can be transferred.



*Even if ALL is selected, the system setup data cannot be saved onto a memory card.

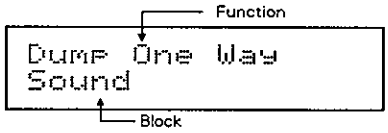
2. Procedure

The Data Transfer mode includes various functions. Connections, necessary preparation and precautions to be taken differ depending on the function. Before executing these functions, please read the following section "Data Transfer Functions".

Step 1 **With the unit set to the Play mode, press [WRITE/COPY] to change to the Data Transfer mode.**

*Pressing [WRITE/COPY] in any other mode will enter the Write mode.

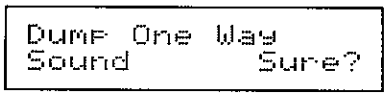
Step 2 **Select the Data Transfer function you want with [PARAM A].**



Step 3 **Select the Data Block to be transferred with [PARAM B].**

*For Convert Load and Convert Save, Block selection is not necessary. So, skip Step 3.

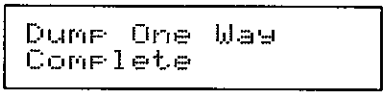
Step 4 **Press [ENTER].**



Step 5 **To continue, press [WRITE/COPY].**

If you wish to leave this mode, press PLAY or [-PAGE] and the unit will return to the Play mode. (The indicator of PLAY lights in green.)

When data transfer has been completed, the following display is shown for a while, then returns to the Play mode.



*If an error message is shown in the display, resolve it by following "Error Messages" on page 146.

3. Data Transfer Functions

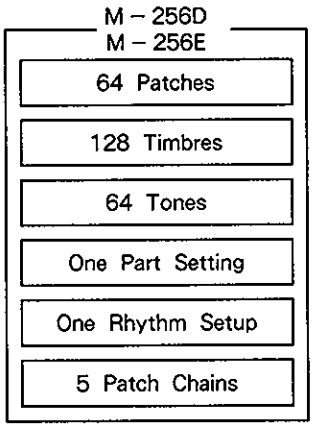
The GR-50's Data Transfer mode includes the following functions.

Function		Function Name
Using a memory card	Internal to Memory Card	Save to Card
	Memory Card to Internal	Load from Card
With a memory card for other than the GR-50	Memory Card to Internal	Convert Load
	Internal to Memory Card	Convert Save
Data Transfer via MIDI (Bulk)	One Way	Dump One Way
	Handshake	Dump Handshake

a. Data Transfer using a memory card

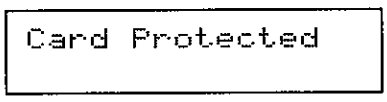
Data in the internal memory of the GR-50 can be copied onto a memory card (M-256D, M-256E). Data which can be copied to a card are as shown below.

Copying the internal data onto a memory card is called Saving, and copying data on a memory card into the internal memory is called Loading.



●Internal to Memory Card (Save to Card)

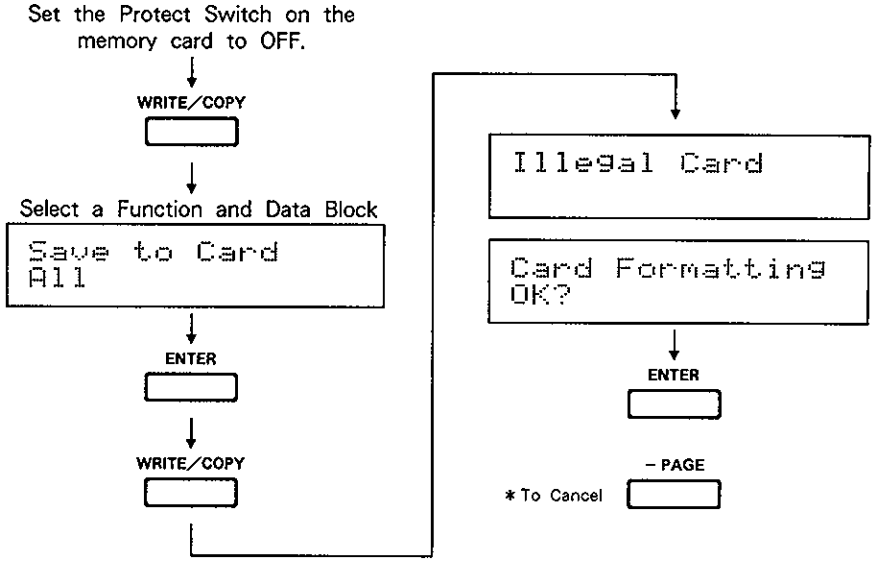
Before saving data onto a memory card, set the Protect Switch on the memory card to OFF, and return it to ON when finished saving.
If you try to write data onto a memory card with the Memory Protect switch set to on, the following display will be shown.



Set the Protect switch on the memory card to OFF, then repeat the procedure.
Return the Protect Switch on the memory card to ON when you finish writing.

●When using a brand new card

If you are using a brand new card, or one that contains data for other than the GR-50, be sure to save data in the "ALL" block. "Illegal Card" is shown in the display if you try to save using such a card. To continue saving, push [ENTER], and to leave, push PLAY or [– PAGE] to return to the Play mode.



*If an error message is shown in the Display, resolve it by following "Error Messages" on page 146.

●Memory Card to Internal (Load from Card)

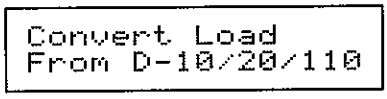
If the Memory Protect of the GR-50 is set to ON, the display responds as shown below. Pressing [ENTER] will cancel the Memory Protect making it possible to load, while pressing PLAY or [– PAGE] will leave the loading mode and return to the Play mode.

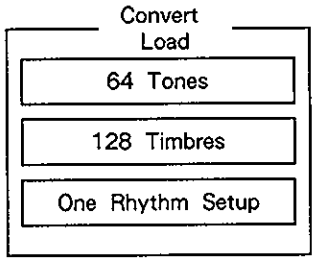
*If an error message is shown in the Display, resolve it by following "Error Messages" on page 146.

b. Data Transfer with a memory card for other than the GR-50

●Convert Load

The GR-50 can read data from the D-10/D-20/D-110's memory cards and convert it for the use with the GR-50. This is called Convert Load. Data which can be Convert-Loaded are as follows.





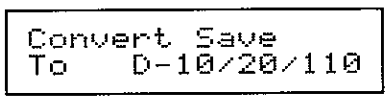
*When user-programmed Tones (i group) are used for the Rhythm Setup of D-10/D-20/D-110, those Tones will be automatically switched with the Preset Rhythm Tones of the same numbers in the GR-50.

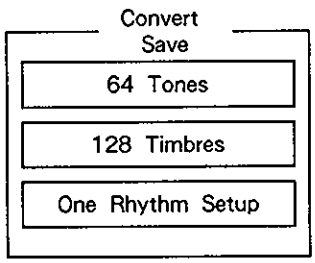
* Memory card remains intact when executing Convert Load.

*When you play a Timbre on a different instrument with the GR-50, the created sound may differ from its original sound. This is because the Preset Tones on the D-10, D-20 or D-110 are different from those on the GR-50.

●Convert Save

It is also possible to write GR-50's data onto a memory card, converting it to be used for the D-10/D-20/D-110. This is called Convert Save. Data which can be used on the D-10/D-20/D-110 are as shown below.





*For Convert Save, M-256 or M-256E memory card can be used, no matter where it has been used.

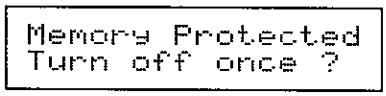
*Convert Save will configure the memory card specifically for the D-10/D-20/D-110.

*Convert Save will erase any existing data on the card.
If, however, you use a memory card (except M-128D) formatted with the D-10/D-20 or D-110, only the Tone, Timbre and Rhythm Setup data is erased, the other data retained.

*When you play a Timbre on the GR-50 with another instrument, the created sound may differ from original sound of GR-50. This is because the Preset Tones on the GR-50 are different from those on the D-10, D-20 or D-110.

●Memory Card to Internal (Convert Load)

If the Memory Protect of the internal memory is set to ON, the display responds as below. Pressing [ENTER] will cancel the Memory Protect making it possible to load, while pressing PLAY or [-PAGE] will leave the loading mode and return to the Play mode.



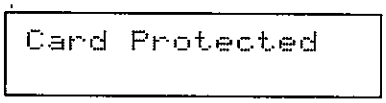
If you try to carry out Convert Load using memory cards other than those for the D-10, D-20 or D-110, such as the GR-50's memory card, the GR-50 shows the message "Illegal Card", without executing Convert Load.

*If an error message is shown in the Display, resolve it by following "Error Messages" on page 146.

●Internal to Memory Card (Convert Save)

Before saving data onto a memory card, set the Protect Switch on the memory card to OFF, and return it to ON when finished saving.

If you try to write data onto a memory card with the Memory Protect switch set to on, the following display will be shown.



Set the Protect switch on the memory card to OFF, then repeat the procedure.
Return the Protect Switch on the memory card to ON when you finish writing.

*When the procedure for Convert Save has been done, "Illegal Card", "Card Formatting OK?" will be displayed, Press [ENTER] to executs "Convert Save". If you want to leave this mode, press [PLAY] or [-PAGE] and the unit will return to the Play mode.

*If an error message is shown in the Display, resolve it by following "Error Messages" on page 146.

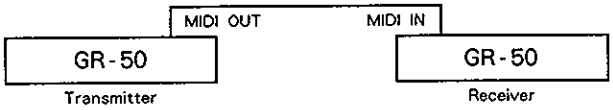
c. Data Transfer via MIDI (Bulk)

Using Roland MIDI Exclusive messages, a block of data can be transferred from one GR-50 to another device (e.g., another GR-50). See page 129.

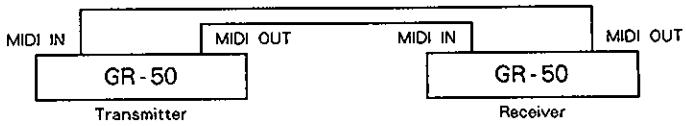
There are two methods of data transfer via MIDI; Handshake and One-way. Handshake allows you to verify whether the receiver is ready to receive the data. This is a quicker and more secure method. On the other hand, One-way, which requires only a simple connection, transfers the data without confirming the condition of the receiver.

● Connections

Connection for Dump One Way



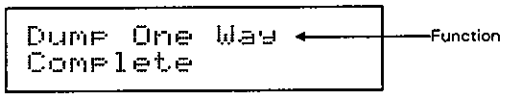
Connection for Dump Handshake



Set the Unit number of the receiver and transmitter to the same number. Otherwise, data transfer is not possible.

All the necessary procedures for data transfer (Dump one-way, Dump handshake) should be carried out on the transmitter unit.

When data is properly copied, the Display responds as shown below for a while, then returns to the Play Mode display.



*If you take the handshake method, an error message is shown in the Display when the data transfer is unsuccessful. If so, resolve it by following "Error Messages" on page 146.

Reference

1 LA Synthesis P. 138

2 Troubleshooting P. 143

3 Appendix Tables P. 149

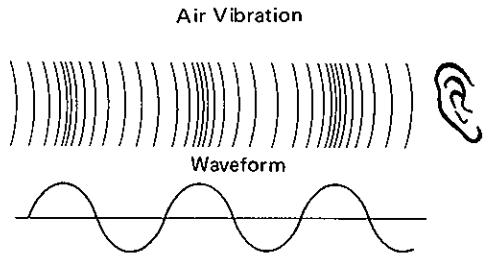
■ LA Synthesis

LA stands for Linear Arithmetic synthesis which is the heart of the new technology. LA synthesis involves a great many technological advances resulting not only in a superior sound quality but also an improved ease of programming. In this way, Roland has succeeded in maintaining a high degree of familiarity to the user despite the technical wizerdry involved.

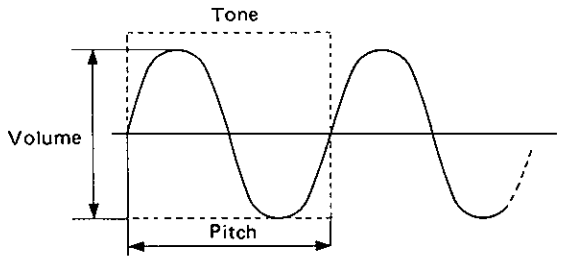
1. What is sound made of ?

[Three Elements of a Sound]

Sounds are air vibrations reaching our ears. By transforming the vibration into digital signals, they can be stored as "waves".

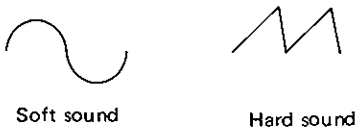


Basically, all sorts of sounds can be considered to consist of "pitch", "timbre" and "volume".

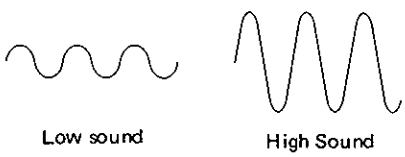


1) Pitch is determined by the number of waves (= frequencies). Higher frequencies raise the pitch. Usually, pitch (frequency) is represented by Hz.

2) Timbre is determined by the shape of a wave. Generally speaking, round shapes wave make a soft sounds, and a sharp shapes make hard sounds.

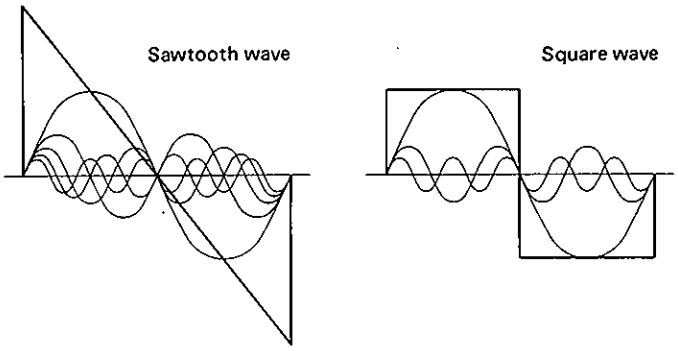


3) Volume is determined by the depth of a wave (= amplitude). Larger waves have higher volumes.



[Harmonics]

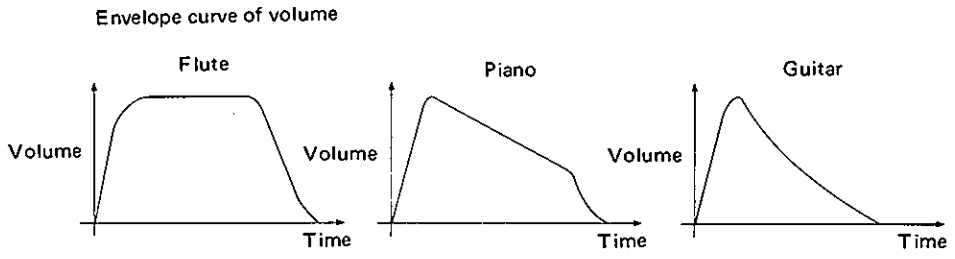
Timbre is determined by the shape of a wave. Then, how is the shape of a wave made? It is believed that a waveform consists of a great many sine waves. For example, a sawtooth is made by adding sine waves of all the multiples of the fundamental frequency.



The waves added to the fundamental are called "harmonics"; even number multiple harmonics and odd number multiple harmonics.
A timbre, in brief, is determined by the harmonic content of the wave.

[Envelope]

Each of the three elements, pitch, timbre and volume, has its own evelope curve. Each instrument sound has a different envelope.



[Natural Sounds]

A natural sound consists of various different sounds. For example, a piano consists of a sharp attack sound then a decay sound. These two are completely different sounds. Also, the timbre of a piano decay sound varies depending on the pitch.

2. Key point for sound creation

The LA system allows you to combine various different sections of sounds for making a sound. In other words, each independent Partial makes its own sounds, then combined (synthesized).

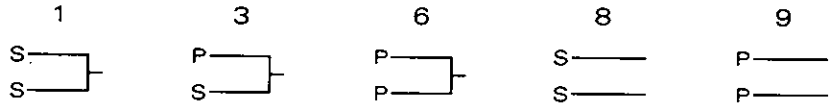
The Structure may be the most important parameter of the GR-50, as it decides how to combine the Partials.

1) Structure

Please study the following examples.

13 Structures may be divided into two groups, with the ring modulator, and without.

[Structures that do not use Ring Modulators]

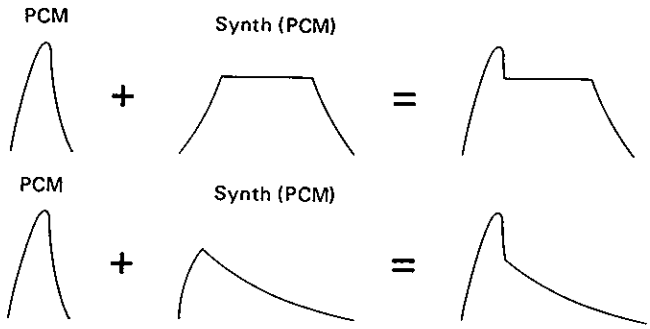


- **Structure 1/3/6**

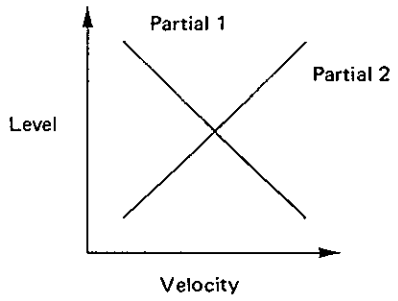
These can be combined as follows.

1) Set each Partial to the same, and detune slightly, and a fat sound can be created. Also, shifting the pitch by one octave or a 5th may be effective. This is suitable for strings or organ sounds.

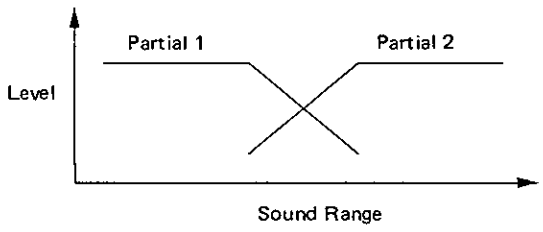
2) To make a realistic sound, use the PCM sound generator for the attack sound. For example, to create a wind instrument sound, make a blowing sound with the PCM generator, then sustained the sound with a PCM loop or a synthesizer generator.



3) Make a bright and dark sound in each Partial separately, then reverse the polarity of the TVA Velocity. Then the tone can be altered by changing how you play the keyboard.



4) Make the upper and lower section sound in each Partial separately, then reverse the bias setting of the TVA. Then different tones can be heard by changing the sound range.

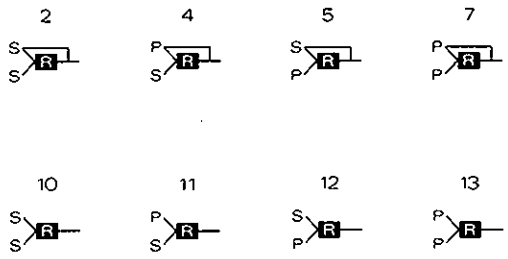


- **Structure 8/9**

This may be useful for creating stereo effects using one sound. However, the pan setting loses effect in this Structure, so the sound image cannot be changed.

[Using the Ring Modulator]

The Ring Modulator cross-modulates two Partials resulting in odd number multiple harmonics. Important points in using the Ring Modulator are as follows.



When the output of either Partial is zero (the TVA level is set to zero or the Partial is muted), the other Partial is automatically sent.

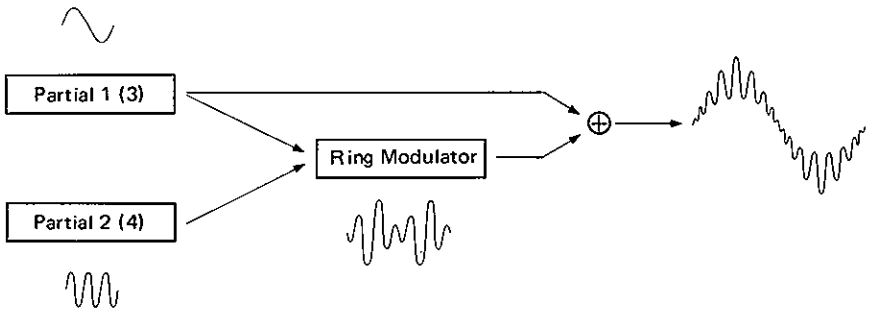
Partial 1 (3) always behaves as a fundamental and Partial 2 (4) as harmonic content.

Partial 1 (3) controls the overall volume.

Partial 2(4) controls the pitch and level of the harmonics.

When the pitch ratio of a Partial is a multiple of the fundamental, a clear sound is obtained. To create a transparent metallic sound, make as complete a sine wave as possible for Partial 1 (3).

PCM sounds normally include many odd number multiple harmonics, and therefore can become too "muddy" by using the Ring Modulator. Do not set the TVA level of Partial 2 (4) too high.



2) Editing

For easier and quicker editing, select a Tone which is similar to the sound you wish to make. Then set the D-110 to the Edit mode, and check the following points to study how the Partials are being used.
If you roughly understand how the sound is made, then changing the sound will be much easier.

- **Check the Partial Mute**

The Partial Mute is one of the parameters, and therefore is written in memory together with other parameters. The muted Partial is not being used.

- **Check how each Partial works**

  Using the Partial Mute function, listen to the sound of each Partial in use separately. You may pay attention to how sounds change depending on the sound range, or by the velocity. When using the Ring Modulator, muting one of the Partials will automatically send the other partial to the output.

- **Check the Structure**

  Using the Structure number, you can check how each Partial functions and how the Partials are combined.

■ TROUBLE SHOOTING

1. Before calling for Service

The GR-50 features so many functions that it may not always react as you expect because of improper setups. Before calling for service, check the following points.

No sound is heard

●Check if the connections are made correctly and securely, and if there is something wrong with the connection cables.

●Check if the Volumes of the GK-1, GK-2, G-series guitar, GR-50, amplifier, MIDI sound module, etc are set too low.

●Check if the pedal of the EV-5 to which the Volume function is assigned is fully lifted.

●Check if the MIDI channels of the GR-50 and the external MIDI device are set to the same number.

●Check if MIDI mode (Poly or Mono) of the external MIDI device matches the GR-50's, and if a monophonic synthesizer is connected instead of a polyphonic.

●Check if the String Select of each string is set to ON.

●Check if the following levels in the G-50's internal sound source are set too low.

- ○Output level of the Tone assigned to each string in the Patch Internal
- ○Output level set for each string in the Patch External
- ○Output level of the Timbre set in Part 1 or 2
- ○Output level of whole Rhythm Tones set in the Rhythm Part
- ○Output level of each Rhythm Tone set in the Rhythm Setup
- ○Level of the parameters of the Tone (e.g., TVA Level)

●Check if you are trying to change sounds in an external MIDI sound module, but the MIDI channel of the GR-50 is not the same as before.

●Check if the unit is in the ROM Play mode. In the ROM Play mode, MIDI messages are ignored.

●Check if you can hear sound through headphones. If so, there is something wrong with the cords or external device.

●If the internal data is rewritten by receiving the Exclusive messages, no sound is produced. While Patches are being changed, no sound is output.

Velocity seems awkward

●Check if an optimum Velocity Curve is selected for your performance.

●Check if the external MIDI device features the Velocity function.

Volumes of strings are different

●Check if you have adjusted the output level and sensitivity.

●Check if the output level of each string is set to equal level.

Pitch is not normal or does not change

●Check if the guitar is tuned properly.

●Check if the guitar is properly tuned to the GR-50.

●Check if the GR-50 is properly tuned to the external instrument.

●Check if the Key Shift, Transpose and Fine Tune (in the Patch Internal, Patch External and Timbre) are set correctly.

*If only a certain Timbre or Tone has the pitch trouble, check the relevant Timbre or Tone.

●Check if the Bender Range is set properly. The Bender Range of the System, Patch External and external MIDI sound module should be set to the same value.

- ○MIDI Control Bender Range in the System
- ○Bender Range in the Patch External
- ○Bender Range in the Timbre
- ○Bender Range in the external MIDI sound module
- ○Setting of the Bender Switch in the WG Group of a Tone

●When the Key Shift or Transpose is set, sending the Bender messages from the EV-5 or tremolo arm does not affect the sound if it exceeds the maximum sound range or note number. Refer to the MIDI Implementation Chart at the back of this owner's manual.

●Check if Pitch Bend of external MIDI sound module is set to OFF.

Patch/Timbre cannot be called

●Check if the connections are correctly made and the connection cables are fine.

●When changing Patches from a controller, check if the Patch Selection is assigned to the controller.

●When using the FC-100, check if the selector switch on the rear of the unit is set to the RRC position.

●When using MIDI, check if the selector switch on the rear of the unit is set to the MIDI position.

●Check if the MIDI channel where Program Changes are received is set properly. Patch selection is performed by Program Changes received on the system's Control Channel, and Timbre selection by those received on the MIDI channel set in each Part.

●Check if the Program Change on the external MIDI sound module is OFF.

●The Program Change numbers sent to the GR-50 and the corresponding sound numbers are not always the same. They differ depending on the external MIDI device that sends the Program Changes.

●Check if the GR-50 is set to the ROM Play mode. In the ROM Play mode, the unit does not receive MIDI messages.

●Check if the GR-50 is set to an Editing mode. If so, press PLAY to return to the Play mode.

Control Functions do not work

●When using the FC-100, check if the selector switch on the rear of the GR-50 is set to the "RRC" position.

●Check if the MIDI Control switch of the system is set to OFF.

●Check if the external MIDI device can receive the relevant control messages.(e.g. Volume)

●Check if the relevant control function on the external MIDI device is set to OFF.

Data Transfer cannot be carried out via MIDI Exclusive messages or edit with PG-10 fails

●Check if the Exclusive Unit numbers are set correctly.

2. Error Messages

When there is something wrong with the procedure you have taken or the GR-50 itself, an error message will be shown in the display. If so, resolve it as follows. If the same error message is shown repeatedly even though there seems to be no mistake in the operation, call a Roland service center.

```
Check
Internal Battery
```

The battery for memory backup of the GR-50 is low. Call your local Roland service center.

```
Check
Card's Battery
```

The battery for memory backup in the optional memory card (M-256D or M-256E) is low. Replace it with a new one (R2016) by following the instructions supplied with the memory card.

```
Memory Protected
Turn off once ?
```

The Memory Protect in the GR-50 is set to ON. Press **ENTER** to disengage the protect function and continue the writing. To leave the mode, press **−PAGE** .

```
Card Protected
```

The Protect Switch on the memory card is set to the ON position. Set it to the OFF position, and repeat the procedure.
Return the Protect Switch on the memory card to ON when you finish writing.

```
Card Write Error
```

Data is not correctly written on the memory card. Check if the memory card is correctly and securely connected to the GR-50, then repeat saving.

```
Card Not Ready
```

No memory card is connected or the memory card is not connected securely. Connect a memory card securely.

```
Read Only Card
Couldn't Write
```

You have tried to save data onto a ROM card. Data cannot be written onto a ROM card.

```
Illegal Card
```

You are using a memory card with no data written or the memory card for a different unit other than the GR-50. To use it for the GR-50, copy data using "Save to Card" explained on page 131. This message also appears when the M-128D card is connected. The M-128D cannot be used for the GR-50.
During the Convert Load, this message is shown when a GR-50 memory card is connected.

```
Chain memory
Full
```

You have tried to insert a Patch in Patch Chain Setting, but the Patch already has 25 Patches.

```
Too Small Card
```

This appears when you have tried to save in "All" block using an M-128D card that has only a half memory capacity. Use M-256D or M-256E.

```
Channel Overlap
```

When setting a Branch of an Patch External, the MIDI channel you have set happens to be the same number as that of the other Branch.
Press [▼] in [VALUE] until the desired MIDI channel is set, or set the MIDI mode to "POLY" once then set a new MIDI channel.

```
Setting Error
```

When setting a Branch of an Patch External, you have tried to set the MIDI channel of the first string to higher than 12 in the Mono mode, or tried to set a Branch which is set to a MIDI channel higher than 12 to the Mono mode. Remember that the valid numbers are 1 to 11.
Press [▼] in [VALUE] until the desired MIDI channel is set, or set the MIDI mode to "POLY" once then set a new MIDI channel.

```
Exclusive Buffer
Full
```

The GR-50 has received Exclusive messages exceeding its capacity.

```
Exclusive Data
Checksum Error
```

This is the Check sum error of Exclusive messages.

```
Handshake Mode
Timeout Occured
```

When performing Dump Handshake, the GR-50 is not connected to an external device which can receive the GR-50's Exclusive messages or the Unit number is not set to the same number.

```
Dump to MIDI
Rejected
```

In Dump Handshake, the external device rejects data transferred from the GR-50, such as when the external device is playing.

```
Check MIDI/RRC
Selector Switch
```

The above appears when the MIDI／RRC Selector Switch on the transmitter is set to the "RRC" position in Dump Handshake. Change it to the "MIDI" position.

■ Appendix Tables

1. Parameter Tables

● Patch Parameters

		Parameter	Display	Variable Range
Patch Common		Patch Name	Name	(spc) A…Z,a…z,0…9 & # ! ? . , : ; ' " * + − / < = >
		Reverb Type	Reverb Type	1…8
		Reverb Time	Reverb Time	1…8
		Reverb Level	Reverb Level	0…7
		Velocity Curve	Velo Curve	1…4

	String	Parameter Group	Parameter	Display	Variable Range
Patch Internal	1~6	Mode Group	Tone Mode	Mode	1st/2nd single, Dual, Velo Switch, Velo X-fade, Velo Mix
			Tone Mode Sensitibity	Mode Sense	1…4
		1st/2nd Tone Group	Tone Select	Tone Number and Tone Name	a01…a64,b01…b64,r01…r64,i01…i64,c01…c64
			Output Level	Output Level	0…100
			Pan	Pan	7 >…> <…< 7
			Key Shift	Key Shift	−24…0…+24
			Fine Tune	Fine Tune	−50…0…+50
			Chromatic Switch	Chromatic SW	ON, OFF
			Reverb Switch	Reverb SW	ON, OFF

	Branch	String	Parameter Group	Parameter	Display	Variable Range
Patch External	A/B		General Group	MIDI Channel	MIDI Channel	1…16, OFF
				MIDI Mode	MIDI Mode	Mono, Poly
				Output Level	Output Level	0…100
				Bender Range	Bender Range	1…64, CHR
		1~6	Individual Group	Program Change No.	Program No.	1…128
				Transpose	Transpose	−24…0…+24
				String Select	Str Select	ON, OFF

● Timbre Parameters

Parameter	Display	Variable Range
Tone Select	Tone Number and Tone Name	a01…a64, b01…b64, r01…r64, i01…i64, c01…c64
Key Shift	Key Shift	−24…0…+24
Fine Tune	Fine Tune	−50…0…+50
Bender Range	Bender Range	0……24
Assign Mode	Assign Mode	1……4
Reverb Switch	Reverb SW	ON, OFF

● Tone Parameters

[Common Parameters]

Parameter	Display	Variable Range
Tone Name	Name	(spc)A…Z,a…z,0…9 & # ! ? . , : ; ' "* + − / <=>
Structures 1&2	Structure 1&2	01…13
Structures 3&4	Structure 3&4	01…13
Partial Mute	Partial Mute	0, 1(each Partial)
ENV Mode	ENV Mode	NORMAL, NO SUS

[Partial Parameters]

Parameter Group	Parameter	Display	PCM	Variable Range
WG Group	Pitch Coarse	WG Pitch Cors	○	C1, C♯1……B8, C9
	Pitch Fine	WG Pitch Fine	○	−50……0……+50
	Key Follow (Pitch)	WG Pitch KF	○	−1, −1/2, −1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4 7/8, 1, 5/4, 3/2, 2, s1, s2
	Bender Switch	WG Bender SW	○	OFF, ON
	Wave Form	WG Waveform	×	SQU, SAW
	PCM Wave Bank	PCM Bank	○	1, 2
	PCM Wave Number	PCM	○	001……128
	Pulse Width	WG Puls Width	×	000…100
	Velocity Sensitivity (Pulse Width)	WG PW Velo	×	−7……0……+7
Pitch ENV Group	Pitch ENV Depth	P-ENV Depth	○	000…010
	Velocity Sensitivity (Depth)	P-ENV Velo	○	0……3
	Key Follow	P-ENV Time KF	○	0……4
	Time 1/2/3/4	P-ENV T1(…4)	○	000……100
	Level 0/1/2	P-ENV L0(…2)	○	−50……00……+50
	Sustain Level	P-ENV Sus L	○	−50……00……+50
	End Level	P-ENV End L	○	−50……00……+50
LFO Group	Rate	P-LFO Rate	○	000……100
	Depth	P-LFO Depth	○	000……100
	Modulation Sensitivity	P-LFO Mod	○	000……100
TVF Group	Frequency	TVF Freq	×	000……100
	Resonance	TVF Reso	×	00……30
	Key Follow (Frequency)	TVF Freq KF	×	−1, −1/2, −1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4 7/8, 1, 5/4, 3/2, 2
	Bias Point	TVF Bias P	×	<A1……<C7, >A1……>C7
	Bias Level	TVF Bias Lv1	×	−7……0……+7
TVF ENV Group	ENV Depth	TVF-ENV Dept	×	000……100
	Velocity Sensitivity (Depth)	TVF-ENV Velo	×	000……100
	Key Follow (Depth)	TVF-ENV DKF	×	0……4
	Key Follow (Time)	TVF-ENV TKF	×	0……4
	Time 1/2/3/4/5	TVF-ENV T1(…5)	×	000……100
	Level 1/2/3	TVF-ENV L1(…3)	×	000……100
	Sustain Level	TVF-ENV Sus L	×	000……100
TVA Group	Level	TVA Level	○	000……100
	Velocity Sensitivity	TVA Velocity	○	−50……0……+50
	Bias Point 1/2	TVA Bias P1(2)	○	<A1……<C7, >A1……>C7
	Bias Level 1/2	TVA Bias L1(2)	○	−12……00
TVA ENV Group	Key Follow (Time)	TVA-ENV TKF	○	0……4
	Velocity Follow (Time 1)	TVA-ENV T1VF	○	0……4
	Time 1/2/3/4/5	TVA-ENV T1(…5)	○	000……100
	Level 1/2/3	TVA-ENV L1(…3)	○	000……100
	Sustain Level	TVA-ENV Sus L	○	000……100

●Part Setting

	Parameter	Display	Variable Range
Part 1/2	Timbre Select	Timbre Number and Tone Name	I-A11…I-A88, I-B11…I-B88, C-A11…C-A88, C-B11…C-B88
	Output Level	Output Level	0…100
	Pan	Pan	7 >…><…< 7
	MIDI Channel	MIDI Channel	1…16, OFF
Rhythm Part	Output Level	Output Level	0…100
	MIDI Channel	MIDI Channel	1…16, OFF

●Rhythm Setup

Note Name	Parameter	Display	Variable Range
C1 – C8	Tone Select	Tone Number and Tone Name	r01…r64
	Output Level	Output Level	0…100
	Pan	Pan	7>…><…<7
	Reverb SW	Reverb SW	ON, OFF

●System Setup

Parameter Group	Parameter	Display	Variable Range
System Group	Master Tune	Master Tune	430.0…449.9
	Memory Protect	Mem Protect	ON, OFF
	Control Channel	MIDI Ch.	1…16, OFF
	Exclusive Unit No.	Exclu Unit #	17…32
	Display Mode	Display Mode	1, 2
MIDI Control Group	MIDI Control Bender Range	Bender Range	1…24, OFF
	MIDI Control Modulation Switch	Modulation	ON, OFF
	MIDI Control Volume Switch	Volume	ON, OFF
Control Assign Group	S1 Switch Assign	GK-2 S1	OFF, Patch Chain Down, Modulation, Sostenuto-S, Octave Up
	S1 Switch Mode	GK-2 S1 Mode	Latch, Unlatch
	S2 Switch Assign	GK-2 S2	OFF, Patch Chain Up, Modulation, Sostenuto-S, Octave Up
	S2 Switch Mode	GK-2 S2 Mode	Latch, Unlatch
	FC-100 Switch Assign	FC Switch	OFF, Patch Chain Up, Modulation, Sostenuto-S, Octave Up
	FC-100 Switch Mode	FC Switch Mode	Latch, Unlatch
	FC-100 EV-5 Assign	FC EV-5	OFF, Modulation, Volume, Bender Up, Bender Down

2. PCM Sound Tables

[Bank 1]

No.	PCM Name	Remarks
001	Bass Drum-1	Rhythm Sound
002	Bass Drum-2	
003	Bass Drum-3	
004	Snare Drum-1	
005	Snare Drum-2	
006	Snare Drum-3	
007	Snare Drum-4	
008	Tom Tom-1	
009	Tom Tom-2	
010	High-Hat	
011	High-Hat (Loop)	
012	Crash Cymbal-1	
013	Crash Cymbal-2 (Loop)	
014	Ride Cymbal-1	
015	Ride Cymbal-2 (Loop)	
016	Cup	
017	China Cymbal-1	
018	China Cymbal-2 (Loop)	
019	Rim Shot	
020	Hand Clap	
021	Mute High Conga	
022	Conga	
023	Bongo	
024	Cowbell	
025	Tambourine	
026	Agogo	
027	Claves	
028	Timbale High	
029	Timbale Low	
030	Cabasa	
031	Timpani Attack	Attack Sound
032	Timpani	
033	Acoustic Piano High	
034	Acoustic Piano Low	
035	Piano Forte Thump	
036	Organ Percussion	
037	Trumpet	
038	Lips	
039	Trombone	
040	Clarinet	
041	Flute High	
042	Flute Low	
043	Steamer	
044	Indian Flute	
045	Breath	
046	Vibraphone High	
047	Vibraphone Low	
048	Marimba	
049	Xylophone High	
050	Xylophone Low	
051	Kalmba	
052	Wind Bell	
053	Chime Bar	
054	Hammer	
055	Guiro	
056	Chink	
057	Nails	
058	Fretless Bass	
059	Pull Bass	
060	Slap Bass	
061	Thump Bass	
062	Acoustic Bass	
063	Electric Bass	
064	Gut Guitar	

No.	PCM Name	Remarks
065	Steel Guitar	
066	Dirty Guitar	
067	Pizzicato	
068	Harp	
069	Contrabass	
070	Cello	
071	Violin-1	
072	Violin-2	
073	Koto	
074	Drawbars (Loop)	Sustained Sound
075	High Organ (Loop)	
076	Low Organ (Loop)	
077	Trumpet (Loop)	
078	Trombone (Loop)	
079	Sax-1 (Loop)	
080	Sax-2 (Loop)	
081	Reed (Loop)	
082	Slap Bass (Loop)	
083	Acoustic Bass (Loop)	
084	Electric Bass-1 (Loop)	
085	Electric Bass-2 (Loop)	
086	Gut Guitar (Loop)	
087	Steel Guitar (Loop)	
088	Electric Guitar (Loop)	
089	Clav (Loop)	
090	Cello (Loop)	
091	Violin (Loop)	
092	Electric Piano-1 (Loop)	
093	Electric Piano-2 (Loop)	
094	Harpsichord-1 (Loop)	
095	Harpsichord-2 (Loop)	
096	Telephone Bell (Loop)	
097	Female Voice-1 (Loop)	
098	Female Voice-2 (Loop)	
099	Male Voice-1 (Loop)	
100	Male Voice-2 (Loop)	
101	Spectrum-1 (Loop)	
012	Spectrum-2 (Loop)	
103	Spectrum-3 (Loop)	
104	Spectrum-4 (Loop)	
105	Spectrum-5 (Loop)	
106	Spectrum-6 (Loop)	
107	Spectrum-7 (Loop)	
108	Spectrum-8 (Loop)	
109	Spectrum-9 (Loop)	
110	Spectrum-10 (Loop)	
111	Noise (Loop)	
112	Shot-1	Decay Sound
113	Shot-2	
114	Shot-3	
115	Shot-4	
116	Shot-5	
117	Shot-6	
118	Shot-7	
119	Shot-8	
120	Shot-9	
121	Shot-10	
122	Shot-11	
123	Shot-12	
124	Shot-13	
125	Shot-14	
126	Shot-15	
127	Shot-16	
128	Shot-17	

* When Sound Number is set between 112 and 128, click noise may be caused in some parameters of TVA ENV.

[Bank 2]

No.	PCM Name	Remarks
001	Bass Drum-1*	Rhythm Sound (The pitch is not affected by Master Tuning.)
002	Bass Drum-2*	
003	Bass Drum-3*	
004	Snare Drum-1*	
005	Snare Drum-2*	
006	Snare Drum-3*	
007	Snare Drum-4*	
008	Tom Tom-1*	
009	Tom Tom-2*	
010	High-Hat*	
011	High-Hat* (Loop)	
012	Crash Cymbal-1*	
013	Crash Cymbal-2* (Loop)	
014	Ride Cymbal-1*	
015	Ride Cymbal-2* (Loop)	
016	Cup*	
017	China Cymbal-1*	
018	China Cymbal-2* (Loop)	
019	Rim Shot*	
020	Hand Clap*	
021	Mute High Conga*	
022	Conga*	
023	Bongo*	
024	Cowbell*	
025	Tambourine*	
026	Agogo*	
027	Claves*	
028	Timbale High*	
029	Timbale Low*	
030	Cabasa*	
031	Loop-1	Effect Sound (Repeats of the same sound)
032	Loop-2	
033	Loop-3	
034	Loop-4	
035	Loop-5	
036	Loop-6	
037	Loop-7	
038	Loop-8	
039	Loop-9	
040	Loop-10	
041	Loop-11	
042	Loop-12	
043	Loop-13	
044	Loop-14	
045	Loop-15	
046	Loop-16	
047	Loop-17	
048	Loop-18	
049	Loop-19	
050	Loop-20	
051	Loop-21	
052	Loop-22	
053	Loop-23	
054	Loop-24	
055	Loop-25	
056	Loop-26	
057	Loop-27	
058	Loop-28	
059	Loop-29	
060	Loop-30	
061	Loop-31	
062	Loop-32	
063	Loop-33	
064	Loop-34	

No.	PCM Name	Remarks
065	Loop-35	
066	Loop-36	
067	Loop-37	
068	Loop-38	
069	Loop-39	
070	Loop-40	
071	Loop-41	
072	Loop-42	
073	Loop-43	
074	Loop-44	
075	Loop-45	
076	Loop-46	
077	Loop-47	
078	Loop-48	
079	Loop-49	
080	Loop-50	
081	Loop-51	
082	Loop-52	
083	Loop-53	
084	Loop-54	
085	Loop-55	
086	Loop-56	
087	Loop-57	
088	Loop-58	
089	Loop-59	
090	Loop-60	
091	Loop-61	
092	Loop-62	
093	Loop-63	
094	Loop-64	
095	Jam-1 (Loop)	Effect Sound (Repeats of combined sounds)
096	Jam-2 (Loop)	
097	Jam-3 (Loop)	
098	Jam-4 (Loop)	
099	Jam-5 (Loop)	
100	Jam-6 (Loop)	
101	Jam-7 (Loop)	
102	Jam-8 (Loop)	
103	Jam-9 (Loop)	
104	Jam-10 (Loop)	
105	Jam-11 (Loop)	
106	Jam-12 (Loop)	
107	Jam-13 (Loop)	
108	Jam-14 (Loop)	
109	Jam-15 (Loop)	
110	Jam-16 (Loop)	
111	Jam-17 (Loop)	
112	Jam-18 (Loop)	
113	Jam-19 (Loop)	
114	Jam-20 (Loop)	
115	Jam-21 (Loop)	
116	Jam-22 (Loop)	
117	Jam-23 (Loop)	
118	Jam-24 (Loop)	
119	Jam-25 (Loop)	
120	Jam-26 (Loop)	
121	Jam-27 (Loop)	
122	Jam-28 (Loop)	
123	Jam-29 (Loop)	
124	Jam-30 (Loop)	
125	Jam-31 (Loop)	
126	Jam-32 (Loop)	
127	Jam-33 (Loop)	
128	Jam-34 (Loop)	

3. Blank Chart

● Patch Chain

		1	2	3	4	5	6	7
Patch Chain	Patch No.							
	Patch Name							

8	9	10	11	12	13	14	15	16

17	18	19	20	21	22	23	24	25

● Patch

[Patch Common]

Patch No.		Reverb Type		Reverb Level	
Patch Name		Reverb Time		Velocity Curve	

[Patch Internal]

	1	2	3	4	5	6
Tone Mode						
Tone Mode Sensitivity						

	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Tone Select												
Output Level												
Pan												
Key Shift												
Fine Tune												
Chromatic SW												
Reverb SW												

[Patch External]

	1		2		3		3		5		6	
	A	B	A	B	A	B	A	B	A	B	A	B
MIDI CH												
MIDI Mode												
Output Level												
Bender Range												
Program Change No.												
Transpose												
String Select												

● Multi Timbre

Fig.9

	Part 1	Part 2	Part R
Timbre Select			
Output Level			
Pan			
MIDI CH			
Tone Select			
Key Shift			
Fine Tune			
Bender Range			
Assign Mode			
Reverb SW			

● Tone

[Common]

Tone No.			Tone Name						
Structure	1 & 2	3 & 4	Partial Mute	1	2	3	4	ENV Mode	

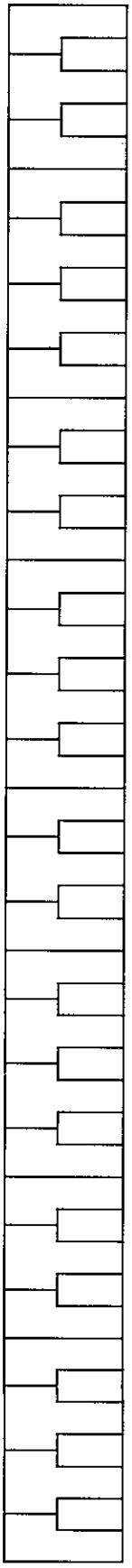
[Partial]

		Partial			
		1	2	3	4
WG	Pitch Cors				
	Pitch Fine				
	Pitch KF				
	Bender SW				
	Waveform				
	PCM Bank				
	PCM No.				
	Pulse Width				
	PW Velocity				
Pitch ENV	Depth				
	Velocity				
	KF(Time)				
	T1				
	T2				
	T3				
	T4				
	L0				
	L1				
	L2				
	Sus L				
	End L				
LFO	Rate				
	Depth				
	Modulation				
TVF	Frequency				
	Resonence				
	KF(Freq)				
	Bias P				
	Bias L				

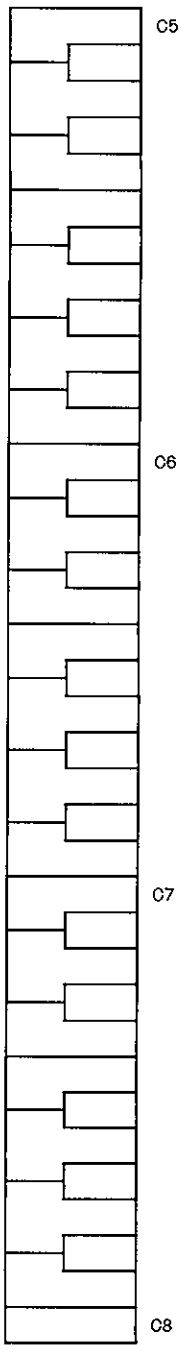
		Partial			
		1	2	3	4
TVF ENV	Depth				
	Velocity				
	KF(Depth)				
	KF(Time)				
	T1				
	T2				
	T3				
	T4				
	T5				
	L1				
	L2				
	L3				
	Sus L				
TVA	Level				
	Velocity				
	Bias P1				
	Bias L1				
	Bias P2				
	Bias L2				
TVA ENV	KF(Time)				
	Velocity Follow(T1)				
	T1				
	T2				
	T3				
	T4				
	T5				
	L1				
	L2				
	L3				
	Sus L				

[Rhythm Setup]

Note Name	Tone	Level	Pan	Reverb SW
C1 (24)				
C♯1(25)				
D1 (26)				
D♯1(27)				
E1 (28)				
F1 (29)				
F♯1(30)				
G1 (31)				
G♯1(32)				
A1 (33)				
A♯1(34)				
B1 (35)				
C2 (36)				
C♯2(37)				
D2 (38)				
D♯2(39)				
E2 (40)				
F2 (41)				
F♯2(42)				
G2 (43)				
G♯2(44)				
A2 (45)				
A♯2(46)				
B2 (47)				
C3 (48)				
C♯3(49)				
D3 (50)				
D♯3(51)				
E3 (52)				
F3 (53)				
F♯3(54)				
G3 (55)				
G 3(56)				
A3 (57)				
A♯3(58)				
B3 (59)				
C4 (60)				
C♯4(61)				
D4 (62)				
D♯4(63)				
E4 (64)				
F4 (65)				
F♯4(66)				
G4 (67)				
G♯4(68)				
A4 (69)				
A♯4(70)				
B4 (71)				



Note Name	Tone	Level	Pan	Reverb SW
C5 (72)				
C♯5(73)				
D5 (74)				
D♯5(75)				
E5 (76)				
F5 (77)				
F♯5(78)				
G5 (79)				
G♯5(80)				
A5 (81)				
A♯5(82)				
B5 (83)				
C6 (84)				
C♯6(85)				
D6 (86)				
D♯6(87)				
E6 (88)				
F6 (89)				
F♯6(90)				
G6 (91)				
G♯6(92)				
A6 (93)				
A♯6(94)				
B6 (95)				
C7 (96)				
C♯7(97)				
D7 (98)				
D♯7(99)				
E7 (100)				
F7 (101)				
F♯7(102)				
G7 (103)				
G♯7(104)				
A7 (105)				
A♯7(106)				
B7 (107)				
C8 (108)				



Roland Exclusive Messages

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all exclusive messages (type IV):

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
{BODY}	Main data
F7H	End of exclusive

MIDI status : F0H, F7H

An exclusive message must be flanked by a pair of status codes, starting with a Manufacturer-ID immediately after F0H (MIDI version1.0).

Manufacturer-ID : 41H

The Manufacturer-ID identifies the manufacturer of a MIDI instrument that triggeres an exclusive message. Value 41H represents Roland's Manufacturer-ID.

Device-ID : DEV

The Device-ID contains a unique value that identifies the individual device in the multiple implementation of MIDI instruments. It is usually set to 00H – 0FH, a value smaller by one than that of a basic channel, but value 00H – 1FH may be used for a device with multiple basic channels.

Model-ID : MDL

The Model-ID contains a value that uniquely identifies one model from another. Different models, however, may share an identical Model-ID if they handle similar data.

The Model-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model-IDs, each representing a unique model:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Command-ID : CMD

The Command-ID indicates the function of an exclusive message. The Command-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command-IDs, each representing a unique function:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Main data : BODY

This field contains a message to be exchanged across an interface. The exact data size and contents will vary with the Model-ID and Command-ID.

2. Address-mapped Data Transfer

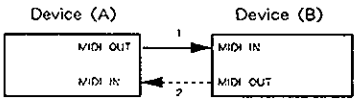
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records--waveform and tone data, switch status, and parameters, for example--to specific locations in a machine-dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures : one-way transfer and handshake transfer.

One-way transfer procedure (See Section3 for details.)

This procedure is suited for the transfer of a small amount of data. It sends out an exclusive message completely independent of a receiving device status.

Connection Diagram

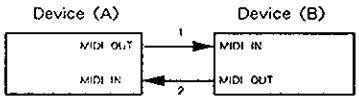


Connectionat point2 is essential for "Request data" procedures. (See Section3.)

Handshake-transfer procedure (See Section4 for details.)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connectionat points1 and 2 is essential.

Notes on the above two procedures

*There are separate Command-IDs for different transfer procedures.
*DevicesA and B cannot exchange data unless they use the same transfer procedure, share identical Device-ID and Model ID, and are ready for communication.

3. One-way Transfer Procedure

This procedure sends out data all the way until it stops when the messages are so short that answerbacks need not be checked.
For long messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts intervals of at least 20milliseconds in between.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

Request data # 1 : RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.
On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.

If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device will send out nothing.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

*The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Data set 1 : DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more data as well as a series of data formatted in an address - dependent order.

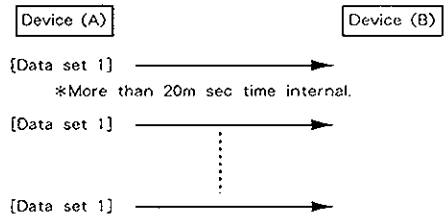
The MIDI standards inhibit non-real time messages from interrupting an exclusive one. This fact is inconvenient for the devices that support a "soft-through" mechanism. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate segments.

Byte	Description
F0H	Exclusive
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ddH	Data
⋮	⋮
sum	Check sum
F7H	End of exclusive

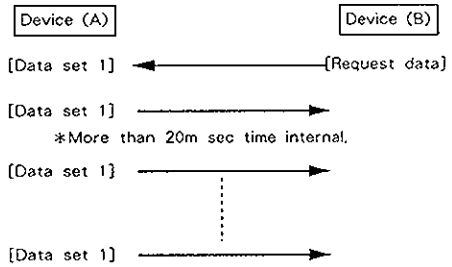
*A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The number of bytes comprising address data varies from one Model-ID to another.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Example of Message Transactions

●Device A sending data to Device B
Transfer of a DT1 message is all that takes place.



●Device B requesting data from Device A
Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



4. Handshake-Transfer Procedure

Handshaking is an interactive process where two devices exchange error checking signals before a message transaction takes place, thereby increasing data reliability. Unlike one-way transfer that inserts a pause between message transactions, handshake transfer allows much speedier transactions because data transfer starts once the receiving device returns a ready signal.

When it comes to handling large amounts of data--sampler waveforms and synthesizer tones over the entire range, for example--across a MIDI interface, handshaking transfer is more efficient than one-way transfer.

Types of Messages

Message	Command ID
Want to send data	WSD (40H)
Request data	RQD (41H)
Data set	DAT (42H)
Acknowledge	ACK (43H)
End of data	EOD (45H)
Communication error	ERR (4EH)
Rejection	RJC (4FH)

Want to send data : WSD (40H)

This message is sent out when data must be sent to a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of the data to be sent.

On receiving a WSD message, the remote device checks its memory for the specified data address and size which will satisfy the request. If it finds them and is ready for communication, the device will return an "Acknowledge (ACK)" message.
Otherwise, it will return a "Rejection (RJC)" message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
40H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

*The size of the data to be sent does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the data should reside.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Request data : RQD (41H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQD message, the remote device checks its memory for the data address and size which satisfy the request. If it finds them and is ready for communication, the device will transmit a "Data set (DAT)" message, which contains the requested data. Otherwise, it will return a "Rejection (RJC)" message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
41H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

*The size of the requested data does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the requested data resides.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Data set : DAT (42H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, the message can convey the starting address of one or more data as well as a series of data formatted in an address-dependent order.

Although the MIDI standards inhibit non-real time messages from interrupting an exclusive one, some devices support a "soft-through" mechanism for such interrupts. To maintaincompatibility with such devices, Roland has limited the DAT to 256bytes so that an excessively long message is sent out in separate segments.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
42H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ddH	Data
⋮	⋮
sum	Check sum
F7H	End of exclusive

*A DAT message is capable of providing only the valid data among those specified by an RQD or WSD message.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The number of bytes comprising address data varies from one model ID to another.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Acknowledge : ACK (43H)

This message is sent out when no error was detected on reception of a WSD, DAT, "End of data (EOD)", or some other message and a requested setup or action is complete. Unless it receives an ACK message, the device at the other end will not proceed to the next operation.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
43H	Command ID
F7H	End of exclusive

End of data : EOD (45H)

This message is sent out to inform a remote device of the end of a message. Communication, however, will not come to an end unless the remote device returns an ACK message even though an EOD message was transmitted.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
45H	Command ID
F7H	End of exclusive

Communications error : ERR (4EH)

This message warns the remote device of a communications fault encountered during message transmission due, for example, to a checksum error. An ERR message may be replaced with a "Rejection (RJC)" one, which terminates the current message transaction in midstream.

When it receives an ERR message, the sending device may either attempt to send out the last message a second time or terminate communication by sending out an RJC message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
4EH	Command ID
F7H	End of exclusive

Rejection : RJC (4FH)

This message is sent out when there is a need to terminate communication by overriding the current message. An RJC message will be triggered when :

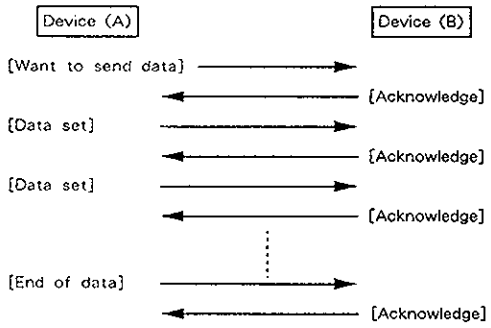
- a WSD or RQD message has specified an illegal data address or size,
- the device is not ready for communication.
- an illegal number of addresses or data has been detected.
- data transfer has been terminated by an operator.
- a communications error has occurred.

An ERR message may be sent out by a device on either side of the interface. Communication must be terminated immediately when either side triggers an ERR message.

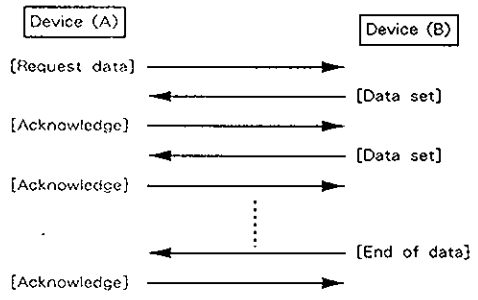
Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
4FH	Command ID
F7H	End of exclusive

Example of Message Transactions

●Data transfer from device (A) to device (B).

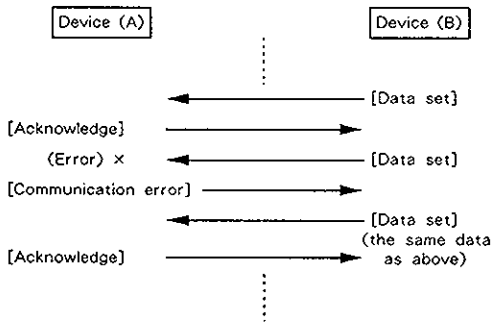


●Device (A) requests and receives data from device (B).

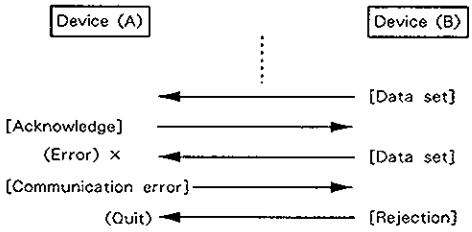


●Error occurs while device (A) is receiving data from device (B).

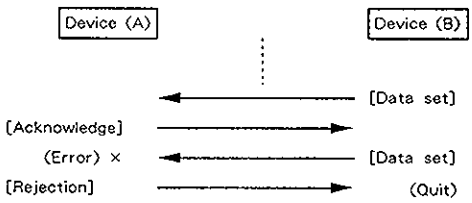
1) Data transfer from device (A) to device (B).



2) Device (B) rejects the data re-transmitied, and quits data transfer.



3) Device (A) immediately quits data transfer.



Guitar Synthesizer
Model GR – 50

MIDI Implementation Chart

Date : Oct. 30 1988
Version : 1.00

Function •••		Transmitted	Recognized	Remarks
Basic Channel	Default	1 – 16	1 – 16	memorised
	Changed	1 – 16	1 – 16	
Mode	Default	Mode 3, 4	Mode 3	memorised
	Messages	OMNI OFF, MONO POLY	×	
	Alterd	*********		
Note Number	True Voice	0 – 127	0 – 127	
		*********	12 – 108	
Velocity	Note ON	○ v = 1 – 127	○ v = 1 – 127	
	Note OFF	× 9n v = 0	×	
After Touch	Key's	×	×	
	Ch's	×	×	
Pitch Bender		○	○ 0 – 24 semitone	
Control Change	1	○	○	Modulation
	2 – 5	×	×	
	6	**	**	Data Entry MSB
	7	○	○	Volume
	8 – 15	×	×	
	16	×	○	General Purpose Control-1
	17 – 37	×	×	
	38	**	×	Data Entry LSB
	39 – 63	×	×	
	64	×	○	Hold 1
	65 – 80	×	×	
	81	×	○	General Purpose Control-1
	82 – 99	×	×	
	100 – 101	** (0)	** (0)	RPC LSB, MSB
	102 – 120	×	×	
	121	○	○	Reset All Controllers
Prog Change	True #	○ 0 – 127	○ 0 – 127	
		*********	0 – 127	
System Exclusive		○	○	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	×	×	
	Commands	×	×	
Aux Message	Local ON/OFF	×	×	
	All Notes OFF	×	○	
	Active Sense	○	○	
	Reset	×	×	
Notes		*Control Change messages from 0 to 95 which are recognized through Control channel are transmitted throgh all the channels which are used in Branches. However, General Purpose Control -1 and General Purpose Control – 6 are converted into the same functions as the FC-100 EV-5 assign and the FC-100 Switch assign in the System Setup, and are transmitted. **RPC = Registered Parameter Control Number RPC # 0 : Bender Range The value of parameter is to be determined by entering data.		

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

○ : Yes
× : No

Guitar Synthesizer
Model GR – 50

MIDI Implementation

Date : Oct. 30 1988
Version : 1.00

1. TRANSMITTED DATA

1-1. Note Event

The messages of guitar strings play are transmitted. Sostenute-S and Octave Up are realized by using this message.

1-1-1. Note off

Status	First	Second
9nH	kkH	00H

n = MIDI Channel 0H – FH (1 – 16)
kk = note number 00H – 7FH (0 – 127)

1-1-2. Note On

Status	First	Second
9nH	kkH	vvH

n = MIDI Channel 0H – FH (1 – 16)
kk = note number 00H – 7FH (0 – 127)
vv = velocity 01H – 7FH (1 – 127)

1-2. Control change

The value of Control change is transmitted through all the MIDI channels which are used in Branches. The value of Control change is made by adding that of an assignable switch or volume which is assigned to Modulation or Volume to that of Control change which is received through Control Channel.

1-2-1. Modulation

Status	First	Second
BnH	01H	vvH

n = MIDI Channel 0H – FH (1 – 16)
vv = The value of Control Channel plus an assignable switch or volume 00H – 7FH (0 – 127)

1-2-2. Volume

Status	First	Second
BnH	07H	vvH

n = MIDI Channel 0H – FH (1 – 16)
vv = The value of Control Channel plus an assignable switch or volume 00H – 7FH (0 – 127)

1-2-3. Other Control changes

Status	First	Second
BnH	ccH	vvH

n = MIDI Channel 0H – FH (1 – 16)
cc = Control change numbe 00H – 79H (0 – 121)
vv = Value of Control Channel 00H – 7FH (0 – 127)

1-2-4. Reset All Controllers

Status	First	Second
BnH	79H	00H

n = MIDI Channel 0H – FH (1 – 16)

When you change Patches or edit MIDI Channel/MIDI Mode in each Branch, GR – 50 transmits Reset All Controllers message through each MIDI channel which was used in each Branch.
When Reset All Controllers message was received by a Receiver which recognizes it,the value of each controller of the Receiver will be initialized by the Receiver.

1-2-5. Data Entry MSB

Status	First	Second
BnH	06H	mmH

mm = Value of a parameter specified by RPC (See description in RPC MSB)
n = MIDI Channel 0H – FH (1 – 16)

1-2-6. Data Entry LSB

Status	First	Second
BnH	26H	llH

ll = Value of a parameter specified by RPC (See description in RPC MSB)
n = MIDI Channel 0H – FH (1 – 16)

1-2-7. RPC LSB

Status	First	Second
BnH	64H	ppH

pp = The lower byte of a parameter number controlled by RPC (Refer to RPC MSB)
n = MIDI Channel 0H – FH (1 – 16)

1-2-8. RPC MSB

Status	First	Second
BnH	65H	qqH

qq = The upper byte of a parameter number controlled by RPC
n = MIDI Channel 0H – FH (1 – 16)

Using MIDI RPC, parameters of a Receiver can be controlled by Control change message.
RPC MSB and LSB specify the parameter to be controlled, while Data Entry MSB and LSB set the parameter value.
Effective RPC which GR – 50 can transmit is Bender Range.
When you turn GR – 50 on, change Patches or edit the Bender Range in each Branch, the each value of Bender Range is transmitted through each MIDI channel which is used in each Branch.

RPC		Data Entry		Description
MSB	LSB	MSB	LSB	
00H	00H	mm	ll	Bender Range (0 – 64) mm = 00H – 40H ll = 00H

1-3. Program change

Program change numbers which are set in Branches

Status	First
CnH	ppH

n = MIDI Channel 0H – FH (1 – 16)
pp = Program change number 00H – 7FH (1 – 128)

1-4. Pitch Bender change

The value of Pitch Bender is transmitted. It is made by adding that of string (choking or tremolo arm) to that of EV – 5 (assignable) or Control channel (MIDI). When the strings are set to chromatic, only that of EV – 5 or Control channel is transmitted.
When plural strings are on in Poly mode, strings are automatically set to chromatic.

Status	First	Second
EnH	llH	mmH

n = MIDI Channel 0H – FH (1 – 16)
ll = lower 7 bits of value 00H – 7FH (0 – 127)
mm = upper 7 bits of value 00H – 7FH (0 – 127)

1-5. Mode message

This message which is set in Branch determines the mode of external MIDI sound source. Either OMNI OFF,MONO or OMNI OFF,POLY is transmitted when GR – 50 is powered – up, Patches are changed,and MIDI channel or MIDI mode in Branch is edited.

1-5-1. OMNI OFF

Status	First	Second
BnH	7CH	00H

n = MIDI Channel 0H – FH (1 – 16)

1-5-2. Mono

Status	First	Second
BnH	7EH	06H

n = MIDI Channel 0H – AH (1 – 11)

Six channels are always necessary in MONO mode.
So Basic channel must be set from 1 (00H) to 11 (0AH). **1-5-3. Poly**

Status	First	Second
BnH	7FH	00H

n = MIDI Channel 0H – FH (1 – 16)

1-6. Exclusive

This message is used to transfer the data of Internal memory (GR – 50).
Refer to Section 3. Exclusive.

Status
F0H System Exclusive
F7H EOX (End of Exclusive)

1-7. Active Sensing

This message is transmitted to check the connection of MIDI OUT when other messages are not transmitted during 262ms.

Status
FEH

2. RECOGNIZED RECEIVE DATA

2-1. Note event

Control channel does not recognize this message.
Each Part (1, 2, R) in multi-Timbre can be played.

2-1-1. Note off

Status	First	Second
8nH kkH vvH		
9nH kkH	00H	

n = MIDI Channel 0H – FH (1 – 16)
kk = note number 00H – 7FH (0 – 127)
vv = velocity ignored

2-1-2. Note on

Status	First	Second
9nH kkH vvH		

n = MIDI Channel 0H – FH (1 – 16)
kk = note number 00H – 7FH (0 – 127)
vv = velocity 01H – 7FH (1 – 127)

In Rhythm Part Note numbers outside the range 24 to 108 are ignored.
In Synthesizer Part (1,2) all the note numbers are recognized, but note numbers outside the range 12 to 108 are transposed to the nearest octave inside the range.

2-2. Control change

This message through Control channel can control both Guitar Synthesizer (Patch Internal) and external MIDI sound source.

Modulation, Volune, Reset All Controllers, General Purpose Control – 1 and General Purpose Control – 6 of Control change are available for Guitar Synthesizer (Patch Internal), and both Modulation and Volume can be set to either ON or OFF in System Setup.

Control change messages from 0 to 95 are available for external MIDI sound source and are transmitted through MIDI channels in Branches just like MIDI THRU and the value of Control change is made by adding that of Control change which is received through Control channel to that of an assignable switch.
However, when GR – 50 recognizes the Control change 16 (General Purpose Control – 1) andthe Control change 81 (General Purpose Control – 6) through Control channel, GR – 50 transmits them after converting them into the same functions as the FC – 100 EV – 5 and FC – 100 Switch which are assigned in System Setup.

Modulation, Volume, Hold 1, Reset All Controllers, RPC and Data Entry of Control change are available for Multi Timbre.

2-2-1. Modulation

Status	First	Second
BnH	01H	vvH

n = MIDI Channel 0H – FH (1 – 16)
vv = value 00H – 7FH (0 – 127) **2-2-2. Volume**

Status	First	Second
BnH	07H	vvH

n = MIDI Channel 0H – FH (1 – 16)
vv = value 00H – 7FH (0 – 127)

2-2-3. Hold 1

Status	First	Second
BnH	40H	vvH

n = MIDI Channel 0H – FH (1 – 16)
vv = value 00H – 7FH (0 – 127)

In multi-Timbre when the value of vv is in the range of 00 to 3FH, Hold 1 is set to OFF and when in the range 40H to 7FH, it is set to ON.

2-2-4. Other Control Change

Status	First	Second
BnH	ccH	vvH

n = MIDI Channel 0H – FH (1 – 16)
cc = Control change number 00H – 79H (0 – 121)
vv = value 00H – 7FH (0 – 127)

2-2-5. Reset All Controllers

Status	First	Second
BnH	79H	00H

n = MIDI Channel 0H – FH (1 – 16)

When this message is received through Control channel or each channel of Parts in Multi Timbre, the following controllers in GR – 50 are set as follows.

Controller	MIDI receive channel and the value		
	Control channel	Channel of Part 1/2	Channel of Rhythm
Volume	127 (Max)	127 (Max)	127 (Max)
Pitch Bender	±0 (Center)	±0 (Center)	-----
Modulation	0 (Min)	0 (Min)	-----
Hold 1	-----	0 (Off)	-----

2-2-6. General Purpose Control – 1

Status	First	Second
BnH	10H	vvH

n = MIDI Channel 0H – FH (1 – 16)
vv = value 00H – 7FH (0 – 127)

When this message is recognized through Control channel, GR – 50 has the same function (Off, Modulation, Volume, Bender Up, Bender Down) to that FC – 100 EV – 5 is assigned in System Setup.
This message is effective for both Guitar Synthesizer and external MIDI sound source, and the above function for Guitar Synthesizer can be set to ON/OFF in System Setup.

2-2-7. General Purpose Control – 6

Status	First	Second
BnH	51H	vvH

n = MIDI Channel 0H – FH (1 – 16)
vv = value 00H – 7FH (0 – 127)

When this message is recognized through Control channel, GR – 50 has the same function (Off, Patch Chain Up, Modulation, Sostenuto – S, Octave Up) to that FC – 100 Switch is assigned in System Setup.
This message is effective for both Guitar Synthesizer and external MIDI sound source, and the above Modulation for Guitar Synthesizer can be set to ON/OFF in System Setup.

2-2-8. Data Entry MSB

Status	First	Second
BnH	06H	mmH

mm = Value of a parameter specified by RPC (See description in RPC MSB)
n = MIDI Chnnel 0H – FH (1 – 16)

2-2-9. Data Entry LSB

Status	First	Second
BnH	26H	llH

ll = Value of a parameter specified by RPC. This message is ignored if received.
(See description in RPC MSB)
n = MIDI Channel0H – FH (1 – 16)

2-2-10. RPC LSB

Status	First	Second
BnH	64H	ppH

pp = The lower byte of a parameter number controlled by RPC
(Refer to RPC MSB)
n = MIDI Channel0H – FH (1 – 16)

2-2-11. RPC MSB

Status	First	Second
BnH	65H	qqH

qq = The upper byte of a parameter number controlled by RPC
n = MIDI Channel0H – FH (1 – 16)

Using MIDI RPC, GR – 50 parameters can be controlled by Control change message. RPC MSB and LSB specify the parameter to be controlled, while Data Entry MSB and LSB set the parameter value.
Effective RPC which GR – 50 can receive is Bender Range of Part 1 and 2.

RPC		Data Entry		Description
MSB	LSB	MSB	LSB	
00H	00H	mm	ll	Bender Range (0 – 24) mm = 00H – 18H ll = ignored if received.

2-3. Program change

This message through Control channel changes patches.
This message through MIDI channel other than Control channel changes timbres in Part1 and 2.

Status	First	Second
CnH	ppH	

n = MIDI Channel 0H – FH (1 – 16)
pp = Program change number 00H – 7FH (1 – 128)

If Display mode in System Setup is set to 2, the way to display patch and timbre number which correspond to Program change number can be available.

2-4. Pitch Bender change

This message through Control channel can control the Pitch Bender of both Guitar Synthesizer (Patch internal) and external MIDI sound source.
Bender range in System Setup is available for Guitar Synthesizer (Patch internal) and can be set to either OFF or 1 to 24.
This message through Control channel can be available for external MIDI sound source and is transmitted through MIDI channels in Branches just like MIDI THRU. So the setting of Bender range of external MIDI sound source is effective. Both the value of Pitch Bender of Control channel and that of string determines the value which is transmitted to external MIDI sound source.
This message through MIDI channel other than Control channel can control the Pitch Bender of Part 1 and 2 in multi-Timbre.

Status	First	Second
EnH	llH	mmH

n = MIDI Channel 0H – FH (1 – 16)
ll = lower 7 bits of value 00H – 7FH (0 – 127)
mm = upper 7 bits of value 00H – 7FH (0 – 127)

2-5. Mode message

Control channel does not recognize this message.
MIDI channels other than Control channel in multi-Timbre which is fixed to Mode 3 (OMNI OFF, POLY) recognize this as All Note off.

Status	First	Second
BnH	mmH	xxH

n = MIDI Channel 0H – FH (1 – 16)
mm = Mode 7BH – 7FH (123 – 127)
xx = ignored

2-6. Exclusive

This message is used to transfer the data of Internal memory (GR – 50).
Refer to Section 3. Exclusive.

Status
F0H System Exclusive
F7H EOX (End of Exclusive)

2-7. Active Sensing

This message is received to check the connection of MIDI IN.
Having received this message, GR – 50 expects to receive information of any status of data during 524ms. If GR – 50 fails to sense message, it assumes that MIDI bus is disconnected for some reason. Then GR – 50 turns off all notes in multi-Timbre which have been turned on by MIDI and returns to normal operation (will not check interval of messages).

Status
FEH

3. EXCLUSIVE COMMUNICATION

GR – 50 uses two ways defined in 「Roland Exclusive Messages」.

Model – ID # of GR – 50 is 16H. Some data (tone,timbre,etc) of GR – 50 is compatible with that of Models which use the same Model – ID #, 16H.
Refer to each Model's MIDI Implementation.

GR – 50 uses Unit # which can be set in System Setup as Device ID and does not use Device ID # of a basic channel.

Address and size are composed of 3 MIDI bytes (21bits).
Refer to 3 – 3. Parameter Address. **3-1. One Way Communication**

3-1-1. Request Data 1 (RQ1)

When the received Data request contains 1) address that matches a parameter base address (table A) and 2) address size is 1 or more, GR – 50 transmits the data in that area by using the message of Data Set 1 (DT1).

GR – 50 never transmits this message. This message is used when sequencer or programer etc requests data.

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H – 1FH (Unit # – 1)
16H	Model ID
11H	Command ID (RQ1)
aaH	Address MSB
aaH	Address
aaH	Address LSB
ssH	Size MSB
ssH	Size
ssH	Size LSB
sum	Check sum
F7H	End of Exclusive (EOX)

3-1-2. Data set (DT1)

When received Data set contains address that matches a parameter base address (table A),stores data from that address.

This is transmitted in the following two cases.
A)when tansmitting parameters of appointed address and size.
B)when Bulk Dump by One Way Communication is executed in Data Transfer mode.

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H－1FH (Unit # －1)
16H	Model ID
12H	Command ID (DT1)
aaH	Address MSB
aaH	Address
aaH	Address LSB
ddH	Data (numbers of data is case by case.)
:	
sum	Check sum
F7H	End of Exclusive (EOX)

3-2. Handshaking Communications

3-2-1. Messages to use

3-2-1-1. Want to send data (WSD) Transmitter sends at first.

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H－1FH (Unit # －1)
16H	Model ID
40H	Command ID (WSD)
aaH	Address MSB
aaH	Address
aaH	Address LSB
ssH	Size MSB
ssH	Size
ssH	Size LSB
sum	Check sum
F7H	End of Exclusive (EOX)

3-2-1-2. Request data (RQD) Receiver sends at first.

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H－1FH (Unit # －1)
16H	Model ID
41H	Command ID (RQD)
aaH	Address MSB
aaH	Address
aaH	Address LSB
ssH	Size MSB
ssH	Size
ssH	Size LSB
sum	Check sum
F7H	End of Exclusive (EOX)

3-2-1-3. Data set (DAT) actual data block

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H－1FH (Unit # －1)
16H	Model ID
42H	Command ID (DAT)
aaH	Address MSB
aaH	Address
aaH	Address LSB
ddH	Data (Number of data is case by case.)
:	
sum	Check sum
F7H	End of Exclusive (EOX)

3-2-1-4. Acknowledge (ACK) affirmative response

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H－1FH (Unit # －1)
16H	Model ID
43H	Command ID (ACK)
F7H	End of Exclusive (EOX)

3-2-1-5. End of Data (EOD) informs the End of Data

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H－1FH (Unit # －1)
16H	Model ID
45H	Command ID (EOD)
F7H	End of Exclusive (EOX)

3-2-1-6. Communication error (ERR) informs the Communication error

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H－1FH (Unit # －1)
16H	Model ID
4EH	Commmand ID (ERR)
F7H	End of Exclusive (EOX)

3-2-1-7. Rejection (RJC) rejects the action

Byte	Description
F0H	System Exclusive Status
41H	Manufactures ID (Roland)
dev	Device ID 10H－1FH (Unit # －1)
16H	Model ID
4FH	Command ID (RJC)
F7H	End of Exclusive (EOX)

3-2-2. Transfer protocol

Data transfer by Handshaking communication has the following three cases.

1)when GR－50 in which Bulk Dump is executed in Data transfer mode becomes a transmitter and transmits WSD and Data transfer begins.
2)when GR－50 receives WSD from another GR－50 or computer etc and becomes a receiver and Data transfer begins.
3)when GR－50 receives RQD from computer etc and becomes a transmitter and Data transfer begins.

GR－50 never transmits RQD and begins Data transfer when it is a receiver.

3-2-2-1. Starting at transmitter the cases of above 1) and 2)

Transmitter		Receiver
1 : sends this message	[WSD] --->	
2a : Stops communication on receiving this message.	<--- [RJC]	will send Rejection when receiving the request while it is reproducing any sound.
2b :	<--- [ACK]	If not reproducing any sound, sends this message and waits transmittion of data.
3 : Sends data	[DAT] --->	If the address matches the parameter base address (table A), stores the data into that location.
4a Upon receiving this message, goes to next data set.	<--- [ACK]	Transmittion and store of data has been done without failure, sends Acknowledge.
4b : When receiving this message, sends the previous data again.	<--- [ERR]	Should failure in data reception occur (eg.disagreement of checksum), sends this message.
(Steps 3 and 4 is repeated necessary times.)		
5 : Sends this message at the end of the data.	[EOD] --->	
6 : Upon receiving this message in reply to End of data, ends current communication.	<--- [ACK]	Upon receipt of this message, sends acknowledge and ceases current handshaking communication.

3-2-2-2. Starting at receiver the case of above 3)

Transmitter (GR – 50)		Receiver (external device)
1 :	<– – – [RQD]	sends this message
2 : Will send this message when Data request comes while it is reproducing sound.	[RJC] – – – >	Ends current communication upon receipt of this message.
3 : When the Data request comes during no – sound period and contains address listed in the parameter base address (table A) followed by 1 or more address size, GR – 50 will send the data stored in that address area and subsequent.	[DAT] – – – >	
4a : Upon receiving this message, goes to next data set.	<– – – [ACK]	Transmittion and store of data has been done without failure, sends Acknowledge.
4b : When receiving this message, sends the previous data again. (Steps 3 and 4 is repeated	<– – – [ERR] necessary times.)	Should failure in data reception occur (eg. disagreement of checksum), sends this message.
5 : Sends this message at the end of data.	[EOD] – – – >	
6 : Upon receipt of this message in reply to End of data, ends current communication.	<– – – [ACK]	Upon receipt of this message, sends acknowledge and ceases current handshaking communication.

3-3. Parameter Address

Addresses are assigned to the data which can be transfered by Exclusive and indicate the data of what parameter. Address is composed of Parameter base address and offset address.
The address which is appointed by [DAT] or [RQD] etc must be based on Parameter base address. When Parameter base address is appointed,offset from there is automatically done. One Data set message contains and transfers the data from Parameter base address to offset address which is defined on the basis of it.

Addresses are represented in 7 – bit hexadecimal.

Address	MSB		LSB
Binary	0aaaaaaa	0bbbbbbb	0ccccccc
7-bit Hexadicimal	AA	BB	CC

3-3-1. Parameter Base Address

Table A Parameter Base Address

Address	Description	Definition of Offset
03 00 00	Timbre Temporary area (part1)	3-3-2-1 table 1
03 00 10	Timbre Temporary area (part2)	
03 00 20	Timbre Temporary area (part1)	
03 00 30	Timbre Temporary area (part2)	
03 00 40	Timbre Temporary area (part1)	
03 00 50	Timbre Temporary area (part2)	
03 00 60	Timbre Temporary area (part1)	
03 00 70	Timbre Temporary area (part2)	
03 01 10	Rhythm Setup Temporary 1 (C1)	3-3-2-2 table 2
03 01 14	Rhythm Setup Temporary 2(C#1)	
:		
03 02 5c	Rhythm Setup Temporary 84(B7)	
03 02 60	Rhythm Setup Temporary 85(C8)	
04 00 00	Tone Temporary area (1st of 1)	3-3-2-3 Table 3
04 01 76	Tone Temporary area (2nd of 1)	
04 03 6c	Tone Temporary area (1st of 2)	
04 05 62	Tone Temporary area (2nd of 2)	
04 07 58	Tone Temporary area (1st of 3)	
04 09 4e	Tone Temporary area (2nd of 3)	
04 0b 44	Tone Temporary area (1st of 4)	
04 0d 3a	Tone Temporary area (2nd of 4)	
04 0F 30	Tone Temporary area (1st of 5)	
04 11 26	Tone Temporary area (2nd of 5)	
04 13 1C	Tone Temporary area (1st of 6)	
04 15 12	Tone Temporary area (2nd of 6)	
04 17 08	Tone Temporary area (part1)	
04 18 7E	Tone Temporary area (part2)	
05 00 00	Timbre Memory 1 (1- 1/1-A11)	3-3-2-1table 1a
05 00 08	Timbre Memory 2 (1- 2/1-A12)	
:	:	
05 07 70	Timbre Memory 127(1-127/1-B87)	
05 07 78	Timbre Memory 128(1-128/1-B88)	
08 00 00	Tone Memory 1 (i01)	3-3-2-3 table 3
08 02 00	Tone Memory 2 (i02)	
:	:	
08 7c 00	Tone Memory 63 (i63)	
08 7e 00	Tone Memory 64 (i64)	
09 00 00	Rhythm Setup Memory 1 (C1)	3-3-2-2 table 2
09 00 04	Rhythm Setup Memory 2 (C#1)	
:	:	
09 02 4c	Rhythm Setup Memory 84 (B7)	
09 02 50	Rhythm Setup Memory 85 (C8)	
20 00 00	Display	3-3-2-4 table 4
40 00 00	Write Request	3-3-2-5 table 5
40 10 00	Write Result	
50 00 00	Patch Temporary	3-3-2-6 table 6
51 00 00	Patch Memory 1 (1/1-11)	3-3-2-6 table 6
51 01 3c	Patch Memory 2 (2/1-12)	
:	:	
51 5b 08	Patch Memory 63 (63/1-87)	
51 5c 44	Patch Memory 64 (64/1-88)	
52 00 00	System Setup	3-3-2-7 table 7
52 01 00	Part Setting (part1)	3-3-2-8 table 8
52 01 08	Part Setting (part2)	
52 01 10	Part Setting (partR)	
52 02 00	Patch Chain 1 (1A)	3-3-2-9 table 9
52 02 32	Patch Chain 2 (1B)	
52 02 64	Patch Chain 3 (1C)	
52 03 16	Patch Chain 4 (1D)	
52 03 48	Patch Chain 5 (1E)	

3-3-2. Offset Address

This indicates offset address from each Parameter base address.

3-3-2-1. Timbre Temporary / Memory parameter

Timbre memory is a half size of Timbre temporary.

Table 1 Timbre Temporary Parameter Offset

Address	Data	Description
00 00 00	000000aa	Tone Group 0 - 3 (a, b, i/c, r)
00 00 01	00aaaaaa	Tone Number 0 - 63 (1 - 64)
00 00 02	00aaaaaa	Key Shift 0 - 48 (-24 - +24)
00 00 03	0aaaaaaa	Fine Tune 0 - 100 (-50 - +50)
00 00 04	000aaaaa	Bender Range 0 - 24
00 00 05	000000aa	Assign Mode 0 - 3 (poly1, poly2, poly3, poly4)
00 00 06	0000000a	Reverb Switch 0 - 1 (Off - On)
00 00 07	0xxxxxxx	Reserved. ignored if received
00 00 08	0xxxxxxx	Reserved. ignored if received
:	:	: :
00 00 0e	0xxxxxxx	Reserved. ignored if received
00 00 0f	0xxxxxxx	Reserved. ignored if received
Total Size	00 00 10 (16 bytes)	

Table 1a Timbre Memory Parameter Offset

Address	Data	Description
00 00 00	000000aa	Tone Group 0 - 3 (a, b, i/c, r)
00 00 01	00aaaaaa	Tone Number 0 - 63 (1 - 64)
00 00 02	00aaaaaa	Key Shift 0 - 48 (-24 - +24)
00 00 03	0aaaaaaa	Fine Tune 0 - 100 (-50 - +50)
00 00 04	000aaaaa	Bender Range 0 - 24
00 00 05	000000aa	Assign Mode 0 - 3 (poly1, poly2, poly3, poly4)
00 00 06	0000000a	Reverb Switch 0 - 1 (Off - On)
00 00 07	0xxxxxxx	Reserved. ignored if received
Total Size	00 00 08 (8 bytes)	

3-3-2-2. Rhythm Setup Parameter (Temporary / memory)

Table 2 Rhythm Setup Parameter Offset

Address	Data	Description
00 00 00	00aaaaaa	Tone 0 - 63 (r01 - r64)
00 00 01	0aaaaaaa	Output Level 0 - 100
00 00 02	00aaaaaa	Panpot 0 - 14 (left - right)
00 00 03	0aaaaaaa	Reverb Switch 0 - 1 (Off - On)
Total Size	00 00 04 (4 bytes)	

3-3-2-3. Tone Parameter (Temporary / Memory)

Tone parameters are composed of common,partial 1, 2, 3 and 4. Table 3 shows each offset address. The real address of a parameter is represented by adding Parameter base address and Tone parameter offset (table 3) and Tone common parameter offset (table 3 - 1) or Tone partial parameter offset (table 3 - 2).

Table 3 Tone Parameter Offset (offset of common and partials)

Address	Description	Definition of Offset
00 00 00	Common parameter	Table 3-1
00 00 0e	Partial 1 parameter	Table 3-2
00 00 48	Partial 2 parameter	Table 3-2
00 01 02	Partial 3 parameter	Table 3-2
00 01 3c	Partial 4 parameter	Table 3-2
Total Size	00 01 76 (246 bytes)	

Table 3 - 1 Tone Common Parameter Offset

Address	Data	Description
00 00 00	0aaaaaaa	Tone Name 1 32 - 127 (ASCII)
:	:	:
00 00 09	0aaaaaaa	Tone Name 10 32 - 127 (ASCII)
00 00 0a	0000aaaa	Structure 1 & 2 0 - 12 (1 - 13)
00 00 0b	0000aaaa	Structure 3 & 4 0 - 12 (1 - 13)
00 00 0c	0000aaaa	Partial Mute 0 - 15 (0000 - 1111)
00 00 0d	0000000a	Envelop Mode 0 - 1 (Normal - No sus)
Total Size	00 00 0e (14 bytes)	

Table 3 - 2 Tone Partial Parameter Offset

Address	Data	Description	
00 00 00	0aaaaaaa	WG Pitch coarse	0 - 96 (C1 - C9)
00 00 01	0aaaaaaa	WG Pitch Fine	0 - 100 (-50 - +50)
00 00 02	000aaaaa	WG Pitch Key Follow	0 - 16 (-1 - s2)
00 00 03	0000000a	WG Pitch Bender Switch	0 - 1 (Off - On)
00 00 04	000000aa	WG PCM Bank / Wave Form	0 - 3
00 00 05	0aaaaaaa	WG PCM Wave Number	0 - 127 (1 - 128)
00 00 06	0aaaaaaa	WG Pulse Width	0 - 100
00 00 07	0000aaaa	WG Pulse Width Velo sense	0 - 14 (-7 - +7)
00 00 08	0000aaaa	Pitch Envelop Depth	0 - 10
00 00 09	0aaaaaaa	Pitch Envelop Velocity	0 - 100
00 00 0a	00000aaa	Pitch Envelop Time Key F	0 - 4
00 00 0b	0aaaaaaa	Pitch Envelop Time 1	0 - 100
00 00 0c	0aaaaaaa	Pitch Envelop Time 2	0 - 100
00 00 0d	0aaaaaaa	Pitch Envelop Time 3	0 - 100
00 00 0e	0aaaaaaa	Pitch Envelop Time 4	0 - 100
00 00 0f	0aaaaaaa	Pitch Envelop Level 0	0 - 100 (-50 - +50)
00 00 10	0aaaaaaa	Pitch Envelop Level 1	0 - 100 (-50 - +50)
00 00 11	0aaaaaaa	Pitch Envelop Level 2	0 - 100 (-50 - +50)
00 00 12	0aaaaaaa	Pitch Envelop Sus Level	0 - 100 (-50 - +50)
00 00 13	0aaaaaaa	Pitch Envelop End Level	0 - 100 (-50 - +50)
00 00 14	0aaaaaaa	Pitch LFO Rate	0 - 100
00 00 15	0aaaaaaa	Pitch LFO Depth	0 - 100
00 00 16	0aaaaaaa	Pitch LFO Modulation Sens	0 - 100
00 00 17	0aaaaaaa	TVF Cutoff	0 - 100
00 00 18	000aaaaa	TVF Resonanse	0 - 30
00 00 19	0000aaaa	TVF Key Follow	0 - 14 (-1 - +2)
00 00 1a	0aaaaaaa	TVF Bias Point	0 - 127 (<C1 - >C7)
00 00 1b	0000aaaa	TVF Bias Level	0 - 14 (-7 - +7)
00 00 1c	0aaaaaaa	TVF Envelop Depth	0 - 100
00 00 1d	0aaaaaaa	TVF Envelop Velocity	0 - 100
00 00 1e	00000aaa	TVF Envelop Depth Key F	0 - 4
00 00 1f	00000aaa	TVF Envelop Time Key F	0 - 4
00 00 20	0aaaaaaa	TVF Envelop Time 1	0 - 100
00 00 21	0aaaaaaa	TVF Envelop Time 2	0 - 100
00 00 22	0aaaaaaa	TVF Envelop Time 3	0 - 100
00 00 23	0aaaaaaa	TVF Envelop Time 4	0 - 100
00 00 24	0aaaaaaa	TVF Envelop Time 5	0 - 100
00 00 25	0aaaaaaa	TVF Envelop Level 1	0 - 100
00 00 26	0aaaaaaa	TVF Envelop Level 2	0 - 100
00 00 27	0aaaaaaa	TVF Envelop Level 3	0 - 100
00 00 28	0aaaaaaa	TVF Envelop Sus Level	0 - 100
00 00 29	0aaaaaaa	TVA Level	0 - 100
00 00 2a	0aaaaaaa	TVA Velocity	0 - 100
00 00 2b	0aaaaaaa	TVA Bias Point 1	0 - 127 (<C1 - >C7)
00 00 2c	0000aaaa	TVA Bias Level 1	0 - 12 (-12 - 0)
00 00 2d	0aaaaaaa	TVA Bias Point 2	0 - 127 (<C1 - >C7)
00 00 2e	0000aaaa	TVA Bias Level 2	0 - 12 (-12 - 0)
00 00 2f	00000aaa	TVA Envelop Time Key F	0 - 4
00 00 30	00000aaa	TVA Envelop Time 1 Velo	0 - 4
00 00 31	0aaaaaaa	TVA Envelop Time 1	0 - 100
00 00 32	0aaaaaaa	TVA Envelop Time 2	0 - 100
00 00 33	0aaaaaaa	TVA Envelop Time 3	0 - 100
00 00 34	0aaaaaaa	TVA Envelop Time 4	0 - 100
00 00 35	0aaaaaaa	TVA Envelop Time 5	0 - 100
00 00 36	0aaaaaaa	TVA Envelop Level 1	0 - 100
00 00 37	0aaaaaaa	TVA Envelop Level 2	0 - 100
00 00 38	0aaaaaaa	TVA Envelop Level 3	0 - 100
00 00 39	0aaaaaaa	TVA Envelop Sus Level	0 - 100
Total Size	00 00 3a (58 bytes)		

3-3-2-4. Display Request

GR－50 deciphers incoming data and sends them to the LCD as a string of ASCII code characters. (In Play mode) No display data in this area can be brought outside world by the use of RQ1 and RQD.

Table 4 Display Request Offset

Address	Data	Description
00 00 00	0aaaaaaa	LCD Upper Left end 32 - 127 (ASCII)
:		
00 00 0f	0aaaaaaa	LCD Upper Right end 32 - 127 (ASCII)
00 00 10	0aaaaaaa	LCD Lower Left end 32 - 127 (ASCII)
:		
00 00 1f	0aaaaaaa	LCD Lower Right end 32 - 127 (ASCII)
Total Size	00 00 20 (32 bytes)	

3-3-2-5. Write Request / Write Result

This message simulates write switch on GR－50,that is, GR－50 writes data in the temporary area into internal memory or memory card. Memory must be specified by two byte addresses with table 5－1, table 5－2, or table 5－3.
GR－50 will inform back of the writting result with the address of Write result. Table 5－4 means Write request. No data in the temporary area can be brought outside world using these Write request addresses through MIDI exclusive message such as RQ1 and RQD.

Table 5 Write Request Temporary Area Offset

Address	Description	Definition of Offset
00 00 00	Tone Temporary area (1st of 1)	Table 5-1
00 00 02	Tone Temporary area (2nd of 1)	
00 00 04	Tone Temporary area (1st of 2)	
00 00 06	Tone Temporary area (2nd of 2)	
00 00 08	Tone Temporary area (1st of 3)	
00 00 0a	Tone Temporary area (2nd of 3)	
00 00 0c	Tone Temporary area (1st of 4)	
00 00 0e	Tone Temporary area (2nd of 4)	
00 00 10	Tone Temporary area (1st of 5)	
00 00 12	Tone Temporary area (2nd of 5)	
00 00 14	Tone Temporary area (1st of 6)	
00 00 16	Tone Temporary area (2nd of 6)	
00 00 18	Tone Temporary area (part1)	
00 00 1a	Tone Temporary area (part2)	
00 01 00	Timbre Temporary area (part1)	Table 5-2
00 01 02	Timbre Temporary area (part2)	
00 01 04	Timbre Temporary area (part1)	
00 01 06	Timbre Temporary area (part2)	
00 01 08	Timbre Temporary area (part1)	
00 01 0a	Timbre Temporary area (part2)	
00 01 0c	Timbre Temporary area (part1)	
00 01 0e	Timbre Temporary area (part2)	
00 04 00	Patch Temporary	Table 5-3

Table 5－1 Tone Write Request Offset

Address	Data	Description
00 00 00	00aaaaaa	Tone Number 0 - 63 (01 - 64)
00 00 01	0000000a	Tone Bank 0 - 1 (1 - c)
Total Size	00 00 20 (32 bytes)	

Table 5－2 Timbre Wrire Request Offset

Address	Data	Description
00 00 00	0aaaaaaa	Timbre Number 0 - 127 (A-11 - B-88 / 1 - 128)
00 00 01	0000000a	Timbre Bank 0 - 1 (1 - c)
Total Size	00 00 02 (2 bytes)	

Table 5－3 Patch Write Request Offset

Address	Data	Description
00 00 00	00aaaaaa	Patch Number 0 - 63 (11 - 88 / 1 - 64,65 -128)
00 00 01	0000000a	Patch Bank 0 - 1 (1 - c)
Total Size	00 00 02 (2 bytes)	

Table 5－4 Write Result

Address	Data	Description
40 10 00	000000aa	Result 0 - 3 (0 Function Completed)
		(1 Card Not Ready)
		(2 Write Protected)
		(3 Reserved)
Total Size	00 00 01 (1 byte)	

3-3-2-6. Patch Parameter

Patch is composed of Patch common, Patch internal and Patch external.(table 6)

Patch common has twenty parameters.(table 6－1)

Patch internal is divided into six by six strings. (table 6－2) And each string is composed of mode, 1st tone and 2nd tone groups.(table 6－2－1)
Mode group has two parameters.(table 6－2－2) Tone group (1st, 2nd) has seven parameters.(table 6－2－3)

Patch external is divided into two by two Branches.(table 6－3) And each Branch is composed of general and individual groups. (table 6－3－1)
General group has four parameters.(table 6－3－2) Individual group is divided into six by six strings (table 6－3－3) and each string has three parameters.(table 6－3－4)

Table 6 Patch Parameter Offset

Address	Description	Definition of Offset
00 00 00	Patch Common	Table 6-1
00 00 14	Patch Internal	Table 6-2
00 00 78	Patch External	Table 6-3
Total Size	00 01 3c (188 bytes)	

Table 6－1 Patch Common Prameter Offset

Address	Data	Description	
00 00 00	0aaaaaaa	Patch Name 1	32 - 127 (ASCII)
00 00 01	0aaaaaaa	Patch Name 2	32 - 127 (ASCII)
:			
00 00 0e	0aaaaaaa	Patch Name 15	32 - 127 (ASCII)
00 00 0f	0aaaaaaa	Patch Name 16	32 - 127 (ASCII)
00 00 10	00000aaa	Reverb Type	0 - 7 (1 - 8)
00 00 11	00000aaa	Reverb Time	0 - 7
00 00 12	00000aaa	Reverb Level	0 - 7
00 00 13	000000aa	Velocity Curve	0 - 3 (1 - 4)
Total Size	00 00 14 (20 bytes)		

Table 6－2 Patch Internal Offset (offset of each string)

Address	Description	Definition of Offset
00 00 00	1st string	Table 6-2-1
00 00 14	2nd string	Table 6-2-1
00 00 28	3rd string	Table 6-2-1
00 00 3c	4th string	Table 6-2-1
00 00 50	5th string	Table 6-2-1
00 00 64	6th string	Table 6-2-1
Total Size	00 00 78 (120 bytes)	

Table 6－2－1 Patch Internal Offset (offset of group)

Address	Description	Definition of Offset
00 00 00	Mode group	Table 6-2-2
00 00 02	1st tone group	Table 6-2-3
00 00 0b	2nd tone group	Table 6-2-3
Total Size	00 00 14 (20 bytes)	

Table 6－2－2 Patch Internal Mode Group Offset

Address	Data	Description	
00 00 00	00000aaa	Tone mode	0 - 5 (1st - Mix)
00 00 01	000000aa	Tone mode sensitivity	0 - 3 (1 - 4)
Total Size	00 00 02 (2 bytes)		

Table 6－2－3 Patch Internal Tone Group Offset (1st/2nd)

Address	Data	Description	
00 00 00	000000aa	Tone Group	0 - 3 (a, b, i/c, r)
00 00 01	00aaaaaa	Tone Number	0 - 63 (1 - 64)
00 00 02	0aaaaaaa	Output Level	0 - 100
00 00 03	00aaaaaa	Panpot	0 - 14 (L - R)
00 00 04	00aaaaaa	Key Shift	0 - 48 (-24 - +24)
00 00 05	0aaaaaaa	Fine Tune	0 - 100 (-50 - +50)
00 00 06	0000000a	Chromatic Switch	0 - 1 (Off - On)
00 00 07	0000000a	Reserved (Ignored if received).	
00 00 08	0000000a	Reverb Switch	0 - 1 (Off - On)
Total Size	00 00 09 (9 bytes)		

Table 6－3 Patch External Offset (offset of Branch)

Address	Description	Definition of Offset
00 00 00	Branch A	Table 6-3-1
00 00 18	Branch B	Table 6-3-1
Total Size	00 00 30 (48 bytes)	

Table 6－3－1 Patch External Offset (offset of group)

Address	Description	Definition of Offset
00 00 00	General group	Table 6-3-2
00 00 06	Individual group	Table 6-3-3
Total Size	00 00 18 (24 bytes)	

Table 6－3－2 Patch External General Group Offset

Address	Data	Description	
00 00 00	000aaaaa	MIDI Channel	0 - 16 (1 - Off)
00 00 01	0000000a	MIDI Mode	0 - 1 (Poly - Mono)
00 00 02	0aaaaaaa	Output Level	0 - 100
00 00 03	0aaaaaaa	Bender Range	0 - 64
00 00 04	0000000a	Reserved (Ignored if received).	
00 00 05	0xxxxxxx	Reserved (Ignored if received).	
Total Size	00 00 06 (6 bytes)		

Table 6－3－3 Patch External Individual Offset (offset of each string)

Address	Description	Definition of Offset
00 00 00	1st string	Table 6-3-4
00 00 03	2nd string	Table 6-3-4
00 00 06	3rd string	Table 6-3-4
00 00 09	4th string	Table 6-3-4
00 00 0c	5th string	Table 6-3-4
00 00 0f	6th string	Table 6-3-4
Total Size	00 00 12 (18 bytes)	

Table 6－3－4 Patch External Individual Offset

Address	Data	Description	
00 00 00	0aaaaaaa	Program Change Number	0 - 127 (1 - 128)
00 00 01	00aaaaaa	Transpose	0 - 48 (-24 - +24)
00 00 02	0000000a	String Select	0 - 1 (Off - On)
Total Size	00 00 03 (3 bytes)		

3-3-2-7. System Setup Parameter

Table 7 System Setup Parameter Offset

Address	Data	Description	
00 00 00	0aaaaaaa	Master Tune	0 - 127 (433.6 - 446.3)
00 00 01	000aaaaa	Control Channel	0 - 16 (1 - 16 - Off)
00 00 02	0000000a	Display Mode	0 - 1 (1 - 2)
00 00 03	000aaaaa	MIDI Cont Bender	0 - 24
00 00 04	0000000a	MIDI Cont Modulation	0 - 1 (Off - On)
00 00 05	0000000a	MIDI Cont Volume	0 - 1 (Off - On)
00 00 06	00000aaa	GK-2 S1 Assign	0 - 4
00 00 07	0000000a	GK-2 S1 Mode	0 - 1 (Latch - Unlatch)
00 00 08	00000aaa	GK-2 S2 Assign	0 - 4
00 00 09	0000000a	GK-2 S2 Mode	0 - 1 (Latch - Unlatch)
00 00 0a	00000aaa	FC-100 Switch Assign	0 - 4
00 00 0b	0000000a	FC-100 Switch Mode	0 - 1 (Latch - Unlatch)
00 00 0c	00000aaa	FC-100 EV-5 Assign	0 - 4
00 00 0d	00000aaa	Sens of 1st string	0 - 7 (1 - 8)
00 00 0e	00000aaa	Sens of 2nd string	0 - 7 (1 - 8)
00 00 0f	00000aaa	Sens of 3rd string	0 - 7 (1 - 8)
00 00 10	00000aaa	Sens of 4th string	0 - 7 (1 - 8)
00 00 11	00000aaa	Sens of 5th string	0 - 7 (1 - 8)
00 00 12	00000aaa	Sens of 6th string	0 - 7 (1 - 8)
Total Size	00 00 13 (19 bytes)		

3-3-2-8. Part Setting Parameter

Table 8 Part Setting Parameter Offset

Address	Data	Description	
00 00 00	0000000a	Timbre group	0 - 1 (I - C)
00 00 01	0aaaaaaa	Timbre number	0 - 127 (A11 - B88 / 1 - 128)
00 00 02	0aaaaaaa	Output Level	0 - 100
00 00 03	0000aaaa	Panpot	0 - 14 (Left - Right)
00 00 04	000aaaaa	MIDI Channel	0 - 16 (1 - 16 - Off)
00 00 05	0xxxxxxx	Reserved. ignored if received	
00 00 06	0xxxxxxx	Reserved. ignored if received	
00 00 07	0xxxxxxx	Reserved. ignored if received	
Total Size	00 00 08 (8 bytes)		

3-3-2-9. Patch Chain Parameter

Table 9 Patch Chain Parameter Offset

Address	Data	Description		
00 00 00	00000000	Chain 1 End mark	0	(Fixed to 0)
00 00 01	0aaaaaaa	Chain 1 Patch Number	0 - 127	(1-11 - C-88)
00 00 02	0000000a	Chain 2 End mark	0 - 1	(Step - End)
00 00 03	0aaaaaaa	Chain 2 Patch Number	0 - 127	(1-11 - C-88)
:		:		
00 00 2e	0000000a	Chain 24 End mark	0 - 1	(Step - End)
00 00 2f	0aaaaaaa	Chain 24 Patch Number	0 - 127	(1-11 - C-88)
00 00 30	0000000a	Chain 25 End mark	0 - 1	(Step - End)
00 00 31	0aaaaaaa	Chain 25 Patch Number	0 - 127	(1-11 - C-88)
Total Size	00 00 32 (50 bnytes)			

Each step of Patch chain is represented by two bytes. 0 of the first byte means the step of Patch chain and 1 means the end of Patch chain.
(eg. Patch chain which has ten steps makes the first byte of the eleventh step 1.) The first byte of the first step is fixed to 0. So Offset address 00 00 00 is always 0.
The second byte means Patch number.

■ SPECIFICATIONS

GR-50 : Guitar Synthesizer Sound Module

Sound Source
LA System
Maximum Voices : 32 Voices

Memory
Patch Chains : 5
Patches : 64
Timbres : 128
Preset Tones : 128
User-programmed Tones : 64
Preset Rhythm Tones : 64 (r64 is OFF)
Rhythm Setups : 85 keys (C1 to C8)
Part Settings : Part 1 and 2, Rhythm Part
System Setup : 1 set

Memory Card [M-256D, M-256E]
Patch Chains : 5
Patches : 64
Timbres : 128
User-programmed Tones : 64
Rhythm Setups : 85 keys (C1 to C8)
Part Settings : Part 1 and 2, Rhythm Part

Front Panel
Power Switch
Memory Card Slot
GK-2 Connector (13 pin type)
Volume Control Knob
Headphones Socket
2 Lines, 16 Letters LCD (backlit)
PLAY [TUNE] Button
[PATCH CHAIN] Button
[PART] [STRING] Button
GROUP [PARAM A] Button
BANK [PARAM B] Button
NUMBER [VALUE] Button
[INT] Button
[EXT] Button
[COM] Button
[SYSTEM] Button
[- PAGE] Button
[+ PAGE] Button
[WRITE/COPY] Button
[ENTER] Button

Rear Panel
Guitar Output Socket
Mix Output Sockets x 2
MIDI/RRC Selector Switch
MIDI Sockets (IN/OUT/THRU)
RRC IN Connector

Dimensions
482 (W) × 340 (D) × 44 (H) mm
(19" × 13 – 3/8" × 1 – 3/4")

Weight
4.0 kg / 8 lb 13 oz

Consumption
14W

Accessories
Owner's Manual
Tone Chart
Patch Chart
ROM Play Manual
Guide book for MIDI
GK-2 Connecting Cable C-13A x 1
Connecting Cable PJ-1 x 1

Options
Synthesizer Driver GK-2
Bus Converter BC-13
Foot Controller FC-100
Expression Pedal EV-5, EV-10
Memory Card (RAM) M-256D, M-256E
Programmer PG-10
Stereo Headphones RH-100

***In the interest of product improvement, specifications, or exterior finish, are subject to change without notice .**

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For Canada

CLASS B **NOTICE**

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B **AVIS**

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Réglement des signaux parasites par le ministère canadien des Communications.

Roland

26023312 '88-12-AE2-2S

Roland

GR-50

Patch Setting Chart [Factory Preset]

Patch No.	Patch Name	Patch Internal					
		1	2	3	4	5	6
		Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone
I – 11 (1)	Pedal Steel	1st single a64 r02	1st single a64 r02	1st single a64 r02	1st single a64 r02	1st single a64 r02	1st single a64 r02
I – 12 (2)	Stereo Acoustic	1st single b09 r64	1st single b09 r64	1st single b09 r64	1st single b09 r64	1st single b09 r64	1st single b09 r64
I – 13 (3)	Slide Bass	1st single b37 r06	1st single b37 r06	1st single b37 r06	1st single b37 r06	1st single b37 r06	1st single b37 r06
I – 14 (4)	Metal Feedbacker	1st single b23 r07	1st single b23 r07	1st single b23 r07	1st single b23 r07	1st single b23 r07	1st single b23 r07
I – 15 (5)	Dyno Rhodes	1st single a08 r04	1st single a08 r04	1st single a08 r04	1st single a08 r04	1st single a08 r04	1st single a08 r04
I – 16 (6)	V-sw Oct. Strings	Velo SW b04 b01	Velo SW b04 b01	Velo SW b04 b01	Velo SW b04 b01	Velo SW b04 b01	Velo SW b04 b01
I – 17 (7)	Steel Acoustic	1st single b19 r64	1st single b19 r64	1st single b19 r64	1st single b19 r64	1st single b19 r64	1st single b19 r64
I – 18 (8)	Ethnic Pipes	Velo X a56 a49	Velo X a56 a49	Velo X a56 a49	Velo X a56 a49	Velo X a56 a49	Velo X a56 a49
I – 21 (9)	Drum Kit # 1	1st single r23 r05	1st single r18 r05	1st single r05 r05	1st single r01 r05	1st single r29 r05	1st single r30 r05
I – 22 (10)	V-mix Brass Lead	Velo Mix a38 a21	Velo Mix a38 a21	Velo Mix a38 a21	Velo Mix a38 a21	Velo Mix a38 a21	Velo Mix a38 a21
I – 23 (11)	V-mix Saxes	Velo Mix a29 a30	Velo Mix a29 a30	Velo Mix a29 a30	Velo Mix a29 a30	Velo Mix a29 a30	Velo Mix a29 a30
I – 24 (12)	Obese Strings	Dual b06 a60	Dual b06 a60	Dual b06 a60	Dual b06 a60	Dual b06 a60	Dual b06 a60
I – 25 (13)	D – 50 Pad	Dual b44 b50	Dual b44 b50	Dual b44 b50	Dual b44 b50	Dual b44 b50	Dual b44 b50
I – 26 (14)	Heavy Metal	1st single b24 r09	1st single b24 r09	1st single b24 r09	1st single b24 r09	1st single b24 r09	1st single b24 r09
I – 27 (15)	Nylon Guitar	1st single b11 r09	1st single b11 r09	1st single b11 r09	1st single b11 r09	1st single b11 r09	1st single b11 r09
I – 28 (16)	Brass Blast	1st single a23 a40	1st single a23 a40	1st single a23 a40	1st single a23 a40	1st single a23 a40	1st single a23 a40

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Patch No.	Patch Name	Patch Internal					
		1	2	3	4	5	6
		Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone
I – 31 (17)	12 Strings Guitar	Dual b20 r64	Dual b20 r64	Dual b20 r64	Dual b20 b09	Dual b20 b09	Dual b20 b09
I – 32 (18)	Rubber Lead	1st single a40 a40	1st single a40 a40	1st single a40 a40	1st single a40 a40	1st single a40 a40	1st single a40 a40
I – 33 (19)	Thumb Bass	1st single b35 r14	1st single b35 r14	1st single b35 r14	1st single b35 r14	1st single b35 r14	1st single b35 r14
I – 34 (20)	Steel Strings	Dual b09 b06	Dual b09 b06	Dual b09 b06	Dual b09 b06	Dual b09 b06	Dual b09 b06
I – 35 (21)	Rockin Harmonics	1st single b21 r64	1st single b21 r64	1st single b21 r64	1st single b21 r64	1st single b21 r64	1st single b21 r64
I – 36 (22)	Stereo Fills	1st single b59 r16	1st single b59 r16	1st single b58 r16	1st single b58 r16	Dual b55 r05	Dual b55 r05
I – 37 (23)	V-mix Flutes	Velo Mix a54 a47	Velo Mix a54 a47	Velo Mix a54 a47	Velo Mix a54 a47	Velo Mix a54 a47	Velo Mix a54 a47
I – 38 (24)	Bowed Strings	1st single b03 b01	1st single b03 b01	1st single b03 b01	1st single b03 b01	1st single b03 b01	1st single b03 b01
I – 41 (25)	Poly Synth	1st single a31 r14	1st single a31 r14	1st single a31 r14	1st single a31 r14	1st single a31 r14	1st single a31 r14
I – 42 (26)	Rockin 5th's	Dual b22 b23	Dual b22 b23	Dual b22 b23	Dual b22 b23	Dual b22 b23	Dual b22 b23
I – 43 (27)	D – 50 Vox	1st single b45 b14	1st single b45 b14	1st single b45 b14	1st single b45 b14	1st single b45 b14	1st single b45 b14
I – 44 (28)	Nashville Tuning	1st single b19 r30	1st single b19 r30	1st single b19 r30	1st single b19 r30	1st single b19 r30	1st single b19 r30
I – 45 (29)	Brass Stab	Dual a25 a26	Dual a25 a26	Dual a25 a26	Dual a25 a26	Dual a25 a26	Dual a25 a26
I – 46 (30)	Mellow Hornz	1st single a52 r18	1st single a52 r18	1st single a52 r18	1st single a52 r18	1st single a52 r18	1st single a52 r18
I – 47 (31)	Holy Mass	1st single a11 r23	1st single a11 r23	1st single a11 r23	1st single a11 r23	1st single a11 r23	1st single a11 r23
I – 48 (32)	Brass Clavi	1st single b28 r18	1st single b28 r18	1st single b28 r18	1st single b28 r18	1st single b28 r18	1st single b28 r18

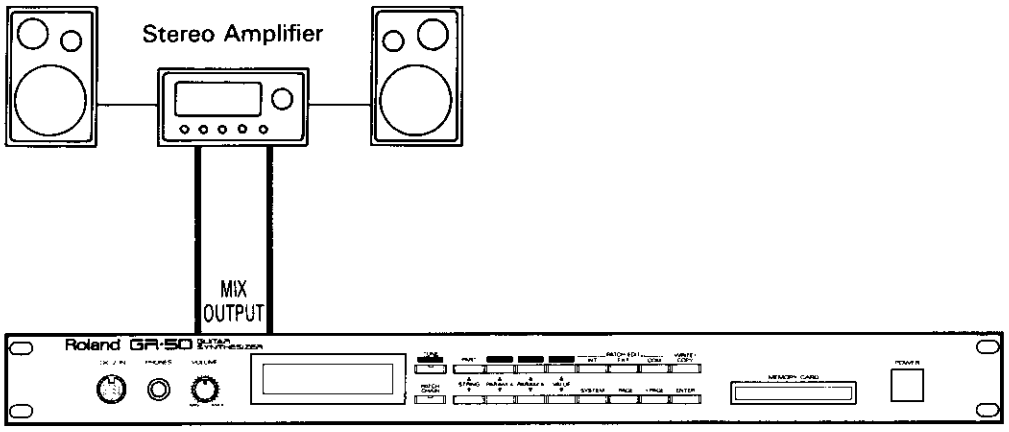
Patch No.	Patch Name	Patch Internal					
		1	2	3	4	5	6
		Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone
I – 51 (33)	Stereo Guitars	Dual b11 b11	Dual b11 b11	Dual b11 b11	Dual b11 b11	Dual b11 b11	Dual b11 b11
I – 52 (34)	Jazzz	1st single a18 a16	1st single a18 a16	1st single a18 a16	1st single a18 a16	1st single a18 a16	1st single a18 a16
I – 53 (35)	Acoustic Piano	1st single a01 r10	1st single a01 r10	1st single a01 r10	1st single a01 r10	1st single a01 r10	1st single a01 r10
I – 54 (36)	Power Voices	Dual a34 a44	Dual a34 a44	Dual a34 a44	Dual a34 a44	Dual a34 a44	Dual a34 a44
I – 55 (37)	Power Lead	1st single a33 r26	1st single a33 r26	1st single a33 r26	1st single a33 r26	1st single a33 r26	1st single a33 r26
I – 56 (38)	Requiem	1st single b41 b06	1st single b41 b06	1st single b41 b06	1st single b41 b06	1st single b41 b06	1st single b41 b06
I – 57 (39)	Blip Riff	1st single a39 a42	1st single a39 a42	1st single a39 a42	1st single a39 a42	1st single a39 a42	1st single a39 a42
I – 58 (40)	Future Pad	1st single b48 b14	1st single b48 b14	1st single b48 b14	1st single b48 b14	1st single b48 b14	1st single b48 b14
I – 61 (41)	Stereo Percussion	1st single r47 r18	1st single r44 r18	1st single r46 r18	1st single r48 r18	1st single r62 r18	1st single r55 r18
I – 62 (42)	Rock Bass	1st single b32 a40	1st single b32 a40	1st single b32 a40	1st single b32 a40	1st single b32 a40	1st single b32 a40
I – 63 (43)	Electric Mute	1st single b16 a44	1st single b15 a44	1st single b16 a44	1st single b15 a44	1st single b16 a44	1st single b16 a44
I – 64 (44)	Slow Strings	Dual b01 r64	Dual b01 r64	Dual b01 r64	Dual b01 r64	Dual b01 b04	Dual b01 b04
I – 65 (45)	Breath Lead	1st single a62 r26	1st single a62 r26	1st single a62 r26	1st single a62 r26	1st single a62 r26	1st single a62 r26
I – 66 (46)	Harmonium Lead	1st single a36 a37	1st single a36 a37	1st single a36 a37	1st single a36 a37	1st single a36 a37	1st single a36 a37
I – 67 (47)	Fat Steel Guitar	1st single b19 a37	1st single b19 a37	1st single b19 a37	1st single b19 a37	1st single b19 a37	1st single b19 a37
I – 68 (48)	Fat Acoustic Guitar	1st single b10 a37	1st single b10 a37	1st single b10 a37	1st single b10 a37	1st single b10 a37	1st single b10 a37

Patch No.	Patch Name	Patch Internal					
		1	2	3	4	5	6
		Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone	Tone Mode 1st tone 2nd tone
I – 71 (49)	Fat Steel Strings	Dual b17 a60	Dual b17 a60	Dual b17 a60	Dual b17 a60	Dual b17 a60	Dual b17 a60
I – 72 (50)	V-sw Stereo Kit	Velo Sw r19 r23	Velo Sw r15 r18	Velo Sw r01 r03	Velo Sw r32 r33	Velo Sw r34 r33	Velo Sw r13 r05
I – 73 (51)	Stereo Sparkle	Dual b52 b50	Dual b52 b50	Dual b52 b50	Dual b52 b50	Dual b52 b50	Dual b52 b50
I – 74 (52)	Leslie's Organ	1st single a17 r07	1st single a17 r07	1st single a17 r07	1st single a17 r07	1st single a17 r07	1st single a17 r07
I – 75 (53)	X-fade String/Horn	Velo X b06 a28	Velo X b06 a28	Velo X b06 a28	Velo X b06 a28	Velo X b06 a28	Velo X b06 a28
I – 76 (54)	V-sw Funk Bass	Velo Sw b35 b36	Velo Sw b35 b36	Velo Sw b35 b36	Velo Sw b35 b36	Velo Sw b35 b36	Velo Sw b35 b36
I – 77 (55)	V-sw Stereo Guitar	Velo Sw b09 b17	Velo Sw b09 b17	Velo Sw b09 b17	Velo Sw b09 b17	Velo Sw b09 b17	Velo Sw b09 b17
I – 78 (56)	V-sw Metalizer	Velo Sw b21 b23	Velo Sw b21 b23	Velo Sw b21 b23	Velo Sw b21 b23	Velo Sw b21 b23	Velo Sw b21 b23
I – 81 (57)	Guitar And Flute	Dual b09 a54	Dual b09 a54	Dual b09 a54	Dual b09 r64	Dual b09 r64	Dual b09 r64
I – 82 (58)	1st + 2nd Melody	Dual a08 a47	Dual a08 a47	Dual a08 r64	Dual a08 r64	Dual a08 a09	Dual a08 a09
I – 83 (59)	Whiplash	1st single a63 r30	1st single a63 r30	1st single a63 r30	1st single a63 r30	1st single a63 r30	1st single a63 r30
I – 84 (60)	Massive !	Dual a13 a60	Dual a13 a60	Dual a13 a60	Dual a13 a60	Dual a13 a60	Dual a13 a60
I – 85 (61)	Big Band !	Dual a26 a30	Dual a26 a30	Dual a26 a30	Dual a26 a55	Dual a27 a30	Dual a27 a30
I – 86 (62)	Bass n Trap	Dual r64 b43	Dual r64 b43	Dual r64 b43	Dual r64 b43	Dual b56 b29	Dual r18 b29
I – 87 (63)	V-sw 12way Split	Velo Sw a37 a49	Velo Sw a10 a30	Velo Sw a55 a19	Velo Sw a28 a09	Velo Sw a34 a17	Velo Sw r13 a32
I – 88 (64)	Soft Rhodes	1st single a09 i21	1st single a09 i21	1st single a09 i21	1st single a09 i21	1st single a09 i21	1st single a09 i21

GR-50 ROM Play

The GR-50 stores some preprogramed songs ready to be played for demonstrating the excellent quality and variation of the sounds. Playing these demonstration songs is called ROM Play in this manual. For the ROM Play, use a stereo amplifier, if possoble.

【Connections】



ROM Play Songs Chart

Song Number	Song Name	
1	Funk in "Em"	Music by Paul Youngblood (c) 1988 by Paul Youngblood
2	Country in "G"	Music by Paul Youngblood (c) 1988 by Paul Youngblood

【Procedure】

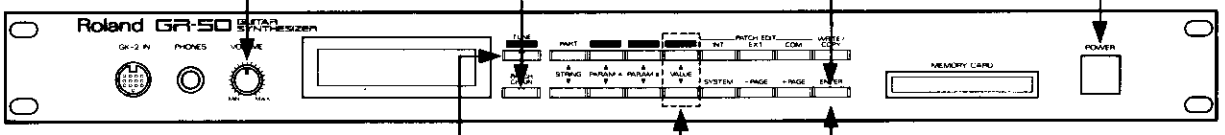
①Switch the unit on.

②Set the volume to an appropriate level with VOLUME.

*When a home stereo set is directly connected to the GR-50, setting the volume too high may damage the speaker.

③ While holding [ENTER] down, press [PATCH CHAIN].

```
ROM Play
Chain of Songs
```



④To play the Chain of songs continuously, press [ENTER].

To stop playing, press [ENTER].

④To specify a song to be played, use [VALUE].

```
ROM Play
1:
```

Pressing [ENTER] will start playing.
To stop playing in the middle of the song, press [ENTER].

⑤When ROM Play is complete, Press [PLAY].

Minus One Function

When a song is stopped, pressing [-PAGE] will make the melody part in the song muted. At this time, you can play the melody using the GK-2.
To play the melody part again, press [+PAGE] with the song stopped.

*ROM Play performance cannot be controlled with MIDI.

*Performance data of the ROM Play is not output through the MIDI OUT socket.

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